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P A I N S

Afflicting Humane

B O D I E S.

Their various Difference, Causes, Parts affected, Signals of Danger or Safety.

S H E W I N G

The Tendency, of Chronick, and acute Diseases; for a seasonable Prevention of fatal Events.

W I T H

A TRACT

O F

ISSUES and SETONS.

By *Everard Maynwaringe*, M. D.

L O N D O N,

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THE
DESIGNMENT
AND
NECESSARY USE
OF THIS
WORK.

FEW there are that think themselves concerned in this train of dangerous diseases; because they judge themselves clear at present, and do suppose these rarely to happen, for that they seldom hear of any to dye upon these accounts; and therefore do not imagine that such ill Fate should befall them: but Feavers, Scurvy, Dropsies, Consumption, or such like common diseases they expect to be their lot: but when you come to understand (as by the discovery following, you will plainly perceive)

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perceive) that few sicknesses or infirmities you can fall into, if they be not radicalled in, or grounded upon some of these latent or lurking destroyers; yet there is a tendency towards them for a complication therewith, and their terminations therein as the last Scene; especially if the disease or sickness be contumacious, and of long continuance, or acute, dangerous, and mortal: so that upon a true information, you will find such probability to be engaged here, when any infirm or sickly state shall alter your present healthful condition of body.

And for such as have already some warnings by pain, and a valetudinary state, may seasonably inquire, and consult some sagacious and solid Judgment, from whence it does arise, whither it tends, what progress probably it will make, if not prevented: a resolve upon the question very likely will fix here, if the case be thoroughly examined, and duly searcht into.

Considering that pain most frequently

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ly either ariseth from some of these already begun to act their parts ; or that some of them will most likely follow thereupon , although veiled under the covering of a more known and familiar Disease ; as fully declared in the subsequent Discourse : for whether the manifest Disease afflicting be the Scurvy, Consumption, Dropsie, Ague, Spleen, Pox, or other chronic Disease ; very often it falls out (though seldom taken notice of) that some of this train is complicated and joyned therewith , if good Medicines or great Providence stop not the progress. And if the sickness be acute, malign , pestilential, or other ; as small Pox, spotted Feavers , Plague , or any general *Phlogosis* and febrile scorching distemper ; they come on commonly by Inflammation in some particular part, and proceed on to tumisie, apostemate, and gangrene, when such a disease is not checkt , but grows desperate, and becomes fatal to the sick : and thus Pleurifies , Angina's , Peripneumonia's , Inflammations

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inflammations of the Brain, Ventricle, Liver, Spleen, Mesentery, &c. they go on in this road, by these stages and transitions, from Inflammation to Tumor, and so forward, finishing the course with a Gangrene and Mortification, if good means take not good effect to prevent and stop the progress.

Observing therefore in constant Practice, the frequency, latency, and danger of this association and confederate train, disguised and couched under some more appearing and known disease; I thought it a Work necessary and grateful to unmask and lay open such secret destroyers, that in the designments and methods of Cure, they may strictly be sought after, and aimed at, thereby preventing the danger threatned, and securing the Patient.

Novemb. 15th 1678.
Wine-Office Court
in Fleet-street.

The

The principal Occurrences, and chief Heads treated of.

PAins, Inflammations, &c. their order, connexion, commutation, and transition.

The frequency and latency of this train in most Sicknesses or Diseases.

The disguised Progress thereof.

The danger and frequent Mortality from not discerning them.

Feavers mistaken; and the common courses for Cure erroneous.

Pains in general; their different nature, causes, and tendency to farther mischief.

Pains of the Head: the causes, and various parts affected.

Pains in the Breast, and the several causes thereof.

Pains of the Dugs; of the intercostal Muscles; of the Pleura, or Pleurifies: pains of the Lungs, of the Heart, Mediastinum, Diaphragma, and Cartilago mucronata.

Pains in the Abdomen or Belly, and various causes thereof.

Pains of the Stomach; of the Guts, Colic-pains, Dysenteric, and Hemorrhoidal; pains of the Spleen; an eminent Cure, and how performed: pains of the Liver; pains of the Reins and Bladder.

Gout-pains and Rheumatism; their causes and indications of Cure.

Inflammations internal: what they are; how they

The principal Occurrences, &c.

they arise; what parts they possess; the material and efficient causes thereof; directions for Cure.

Tumors internal: the occasional causes thereof; the modus generandi; how to know them; their way of resolution, fixation, and translation: their different state and condition, scirrhus, apostemate, and cancerous: cautions in Cure.

Ulcers internal: the essential differences; their manner of generation; the continent causes; the manifesting signs.

Gangrenes and Mortification: what they are; the difference between them: the external and primitive causes of Gangrenes; the internal and conjunct causes: the Characters declaring a Gangrene: their state of curability, and incurability: many thousands dye gangrened not taken notice of; instructions before curing; amputation when, and where to be made.

The Result of the whole matter.

Fontanels and Setons: what they are; how made; where to be placed; for whom beneficial; the due ordering them in several conditions; the time when to heal them safely.

THE
ORDER,
AND
DEPENDENCE
OF

Pains, Inflammations, Tumors, &c.
internal ; cautioning their proceeding and complication.

THE natural *economy* and government of humane Bodies, may well be compared to a body *Politick*, subjected to State-discipline, Order and Conformity : the former hath a regular course instituted and implanted by Nature ; the latter hath Laws imposed and enjoined by humane Authority to be observed.

In both these *Governments* so long as Order and Laws are obeyed and kept, the whole is preserved sound, safe, and in quietness : but when the subjected parts of either do mutiny, rebel, and shake off the *Government*, refusing to

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act in their stations and subserviency ; the whole then is put into disorder, the union of Community is broken, and the publick safety endangered thereby.

If a *part* of the body decline its office and performance of duty, acts perversly and inordinately ; the mischief stops not there, but other *parts* also are perverted thereby, and drawn in to consent : likewise if one *Member* of State be sick of tranquillity and peace, be disturbed at the Government, and begins to be dissenting, disobedient or mutinous, ten to one but this infection begets another of the same mind, and faction, and the *second* makes a *third*, and thus the malignity spreads.

When any *part* of the body begins to fail and be out of order, it seldom stops at its first degree of declension, but makes a progress from *bad to worse*, if not remedied and prevented : So a Member of State begins to be distempered, first with *discontent*, afterwards *anger* and *malice* ariseth ; and after that perhaps *Rebellion* follows, if fear of miscarriage do not choak and deter the Plot.

If a *finger* akes, you will not be much concerned ; but if the *Head* be pained, or sick at *Heart*, you then consider of seeking remedy, as not able to bear the trouble, or run the hazard : So if a mean inconsiderable man be disorderly, contemptuous and drunken, little notice is taken thereof, as to the publick detriment and injury : but if a *great States-man* or *Magistrate* be

be corrupt in his place or office, or be seditious; 'tis time at the first appearance or discovery to correct that insolency; and reform the abuse, as of dangerous consequence.

As the *member* is in office, dignity and power, greater or less, the care, inspection and regard thereto is to be had accordingly, being of greater or less concern; and yet no *part* so mean as to be contemned or slighted, for a pain but in the *Toe*, may *tumifie, inflame* and *gangrene*, endangering the whole body; and a Fisher-man of *Naples*, beginning but with a Tumult of Boys, thereby subverted the Government, and usurpt the Power.

But to quit the *Analogie* and prosecute directly the subject proposed; here is first *Pain* which most commonly is the leader; a signal or warning of a defection or disturbance in the part where it is seated; which although sometimes it vanisheth and comes to nothing, yet it is not so always, but often otherwise; for either by the continuance in a remiss and low degree, or by speedy advancing to extremity, it ushers in other consequents of great concernment and fear, and sometimes *fatal*.

The *greatest* Diseases have *small* beginnings and seemingly contemptible; yet by time and neglect, or by unfit and improper means, or management, they arrive to a *formidable* height, and become mortal. *Obsta principiis* is good counsel; the beginnings of evil are to be checkt, lest they grow too big to be mastered and become irremediable.

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If *pain* seize a part here or there, you know not what will follow, nor by what gradual steps it will advance, what progress it will make, and what the issue and event of all.

If *pain* begins, *Inflammation* or *Tumor* or both may follow, and perhaps not stop there, except prevented by a prudent course to obviate the mischief.

And further, if a *part* or member be disabled, or put out of its office and the rectitude of its function by *pain* and *anguish*, the detriment does not rest here only, but other parts are drawn into consent, they fare the worse for it, and by time the whole is become a sufferer and made sensible of that prejudice. And every ones experience by the death or long languishing diseases of their Relations, Friends or Acquaintance can testifie this truth; how small their complaints were at first, what little appearance their infirmities did make, how unsuspected the *progress*, and such an *event*, or the arrival to such a height how unexpected; and therefore not so timely, not so prudently and carefully applied to for help and remedy.

A *small* pain begins, *greater* comes on, and that's a ground-work for *Inflammation*, and this most likely to beget a *Tumor*, which if not discussed in time, and the anguish of the *Archeus* or vital principle appeased, a *scirrhus* hardness is fixed there, *cancerous* or otherwise; or it degenerates into purulent matter and *apostemates*: it stays not long in that capacity, but
it

it breaks forth and presents you with an *Ulcer*, if the place be in view ; but if not, and the part affected be internal and hid, then there will be a discovery or discharge of matter by some Emunctory or common vent, or sudden death must finish the course : thus every Scene more tragical, threatening and more dangerous than other.

True it is, that Nature by her own struggling and endeavors does quit her self sometimes without assistance and help, and stops the course and progress of a disease ; but this is hazardous to trust to or rely upon ; and Providence usually works not *wonders* but where the *means* is wanting : your presumption therefore and neglect may justly be chastised with a smarting sense of what you slighted ; and your contempt of means punished with the loss of that, which others by good means do frequently obtain.

As Nature is regular, and observes her order and course in a state of integrity ; so likewise in a *preternatural* state of defection, there is sometimes a Method and Series, or a gradual progress from one disease to another, or a complication of diseases *gradatim* brought and linked together ; that a sagacious foresighted and compleat Physician, seeing one disease to present it self, looks beyond that, takes a farther prospect, and discovers the train that will follow, knowing their *connexion* and *dependence* upon each other ; and there is much reason for it : for, as the parts and members consent and comply with

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each

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each other in *sanity* and a state of health ; so likewise the members do complain, condole and suffer with each other , and become partners in *disorder*, infirmity and a *morbous* state: for the members having a mutual commerce, supply and help one from another, of necessity then if one be out of order and defective, the other will be disordered thereby, wanting the assistance of its fellow and consort in the common work.

As every part of the body labours to support it self ; so each endeavors by the *duty* and *office* imposed by Nature, to maintain the society and harmony of the whole *Corporation* : for every part hath such dependence upon, and relation to each other in the common safety, that the good of one is the benefit of another , and the sufferings of one redound to the prejudice of the rest ; and as the part is more *noble* and *principal* in office, the sooner is the whole made sensible of its grief ; and a single *Malady* becomes the common *calamity*, and a publick evil.

But to come yet closer to the matter in hand, and to illustrate this *Series* of Diseases, the subject proposed in the front of this Work ; and that you may know how common this case is in practice, how rarely discovered , and therefore erroneously adjudged, and the *fatal* consequences thereof ; which to handle the more distinctly and clearly, and to prove more convincingly and unanswerably, I shall part my Discourse into three divisions, and raise Arguments under these three *Hypotheses*, comprising the whole story of our design.

I. That

Inflammations, Tumors, &c. internal. 7

1. That this Series of *Pain, Inflammation, Tumor, &c.* is very common, and the most frequent train of mortal Diseases incident to mans body.

2. That this progress and complication is seldom determined and adjudged, except they present outwards and are discovered by the eye.

3. That many *curable* diseases or sicknesses become *mortal*; and many thousands have died for, and upon the mistake of not discerning this series for the case; but appointing or adapting a course of Physick by other indications which have proved either very *injurious* and destructive, or at best of no *advantage* to remove the disease, or retard its course.

To set forth and make evident the truth of our first *Position*, you must know that *Pain* is commonly the first *Symptom* of most diseases; and if it does not appear as a leader, yet very frequently it comes in *early*, or soon after the disease hath discovered it self; and few that complain of sickness, but complain of some *pain* that attends it, and this our Practice must owne and confirm: and taking a survey of the Catalogue of Diseases belonging to mans Body, you will find no Symptom so frequently adjoyned and appertaining to them, as that of *pain*; and the reason hereof in part may be this: That all the Symptoms of diseases are the objects of *sense*; that is, they do come under, or are discernable by some of the *senses*; which being compared

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amongst

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amongst themselves, are of greater and lesser latitude: now *pain* belongs to, and is adjudged by the sense of *feeling* only; which sense is of the largest capacity of all the rest; being extended throughout the body, even through the *Organs* of all the other senses; whereas the rest are confined to particular parts, the *Eye*, the *Ear*, &c. and have no larger extent or place of residence, (as hereafter we shall have further occasion to discourse.) For instance; *seeing* may discover what is amiss upon the *external* parts or superficies of the body, and discern what comes forth, that it may be adjudged; but *feeling* takes cognisance of inside and outside, and what we cannot *see* we *feel*, and are sensible of by *pain*, even amongst the most secret and hidden parts of the body: so that *pain* is known to be, and does manifest it self, whether it be within, or without. Hence it is, that *pain* is the most usual and most frequent Symptom amongst diseases.

Pain therefore belonging to this capacious sense, and being an appertainer thereto, and having admission into all its quarters and confines; no wonder then if *pain* so frequently occurs, and is the most usual attendant, or most troublesom intruder upon the sick.

Having thus proved (and might farther confirm it, if needful) that *pain* is the most general and frequent complaint of the diseased; we shall proceed and inquire farther, how *Tumors*, *Inflammations*, &c. do follow thereupon, and how

how *pain* introduceth and ushers in the rest of its fellows, and how *pain* is introduced sometimes by them; and how they appear very often with their consorts, having *relation* to and *dependence* upon each other by way of causation; that some of them, and sometimes all, are principal Actors in the Tragedy of most mortal diseases, though seldom discerned.

Mortal diseases I said; because where diseases are stopt in their progress, and have not their full course, but are taken off by effectual means, or great *Providence*, the links of this chain is broken, and then perhaps *pain* may exercise its power singly and alone for a time, and by intervals; or *pain* may contract or associate a *Tumor*, and sometimes an *Inflammation*, and yet all end well; these may go off, or be sent off by Medicine, and proceed no farther, and the Patient recover, or return to a good and sound state of Health: but too often it proves otherwise, either by neglect and delay, by improper methods and erroneous proceeding, or for want of exquisite means, the progress goes on gradually to the last, and ends with *Death*.

In this train of Diseases, *pain* for the most part is a *leader*, and sometimes a *follower*; but seldom misseeth to be the *discoverer*.

Pain begins and gives the Alarm, discovering a disorder or disease in this or that internal and hidden part of the body; gives warning betimes, and implores aid: but none coming, at least not sufficient and effectual, the *pain* continues,

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ness, as the cause is yet remaining : if the help of Art be wanting, yet Nature is not wanting to her self, but summoneth all her power and endeavors to dislodge and expel this morbid cause, and raiseth all her Spirits, though in a *febrile* disturbance and confusion, against this common enemy : to the part *grieved* these Spirits resort plentifully, and with them the blood is conveyed, which flowing in and remaining there, a *Tumor* is generated, and by this concurrence of Spirits the part grows fiery, and an *Inflammation* is planted here and superadded.

The case remaining thus for a while, and this confluence not dispersed, discussed or drawn off; the *Tumor* perhaps grows *cancerous*, afterwards *gangrenes* and *mortifies*, then death immediately ensues and concludes all.

But sometimes the *Tumor* *suppurates* or *apostematizes*; and then the contained purulent matter breaks forth and begets an *Ulcer*, if the Patient survive and hold it out : and with this the diseased may continue a longer or shorter time, according to the nature of the *Ulcer*, and as it is more or less dangerously seated : for if it be a principal part, or adjacent; or this *ulcerous* matter issuing, falls into some inconvenient cavity where it is lodged again, and finds no *Emunctory* or passage out, or erodes and rots some choice vessel of great use, the case is deplorable, and scarce remediable.

Now to comment a little upon this series and progress, consider that where there is pain, and
it

it continues, especially in a high degree, you may rationally expect a Tumor, or flux of Humors congregated to be the consequent (if not prevented) which is brought to pass and effected after this manner, or upon a threefold account.

First, Because Nature in a time of exigence and need, does endeavor to help her self, and exerts her power to the utmost; and therefore when *pain* afflicts a member, the *Spirits* resort thither, and with them the *blood* also to relieve it.

Secondly, The part pained by reason of this *plenitude* of blood and confluence of *Spirits*, does wax hot, and this heat begets an attraction, and draws more humors to the part.

Thirdly, *Pain* debilitates and disables the part, whereby it is become incapable to defend it self, but lyes obnoxious to this flux of humors, which being out of their proper place, and remaining in a distempered part, they degenerate variously.

Now upon a survey of the whole matter, although Nature intends well in this *hurry* and *bustle*, being rouzed up and pricked by *pain* (and success sometimes happens upon it, or no damage) yet commonly it falls out otherwise, and there is an *oppression* and *over-charge* brought upon the part: The confluence of *Spirits* together with the innate, tumultuate and inflame the grieved member; which being thus discomposed and out of order, cannot moderate and check the flux and attraction of humors,
but

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but is over-loaded, crowded therewith, and distended: And unless the help of *Physick*, directed by a prudent hand, steps in to appease and allay this disturbance, by casting out the *morbific seminary* or matter, and reduce this disorder, it goes on from bad to worse frequently, and from thence to *extremity*, and perhaps to an *irrecoverable* state, in manner and by such gradations as before related.

And besides what *pain* does thus effect as a leader; *Tumors* sometimes do take their rise not from *pain*, but either by *congestion*, or a congested matter in an infirm part, be it never so small, if noxious and preternatural, it is sufficient to be the ground-work of all this mischief: or else sometimes by *defluxion*, from some part *mandant*; in both which cases *pain* follows as a consequent and effect; (as hereafter more at large) but then *Tumor* and *pain* being thus met together, the progress will go on as before, being now in the same road as formerly, when *pain* preceded. And although *pain* does not begin to raise a *Tumor*, but the foundation is laid by congested matter there bred, or defluxed and transmitted thither from some other part; yet *rarely* but *pain* supervenes, and comes in as an associate to hasten and set forward the *Tumor*: for matter congested or defluxed, is injurious and a burden upon a part, and then the vital principle or *Archæus* (which hath the government and tuition) is molested and troubled therewith, and seldom lyes calm or quiet under
that

that oppression, but begins to be incensed and enraged (more or less, *pro magnitudine causarum*) and this *ira Archæi* is the *ratio formalis* of pain, the very pain it self which is felt.

By the whole current of our Discourse you see, and by your own experience you may observe, that *pain* is most frequent with infirm and diseased bodies; so likewise it is apparent to reason, and experience confirms it, That *Tumors*, *Inflammations*, &c. will often follow thereupon as dependants thence: and *è contrà*, pain does supervene and follow preternatural *Tumors*. And we see commonly that *external pains* continuing, do produce a *Tumor* or distention of the part, at least is coadjuvant or concomitant: after the same manner, and by the same way of causation, *internal Tumors* are bred also, and we cannot in reason imagine otherwise: for the course of diseases, having the same *radix*, and taking their rise after the same manner, are alike internal and external; for as pain begets a *Tumor* externally and in view, so doth it produce the like effect, and makes the same progress in the interior and hidden parts.

And thus much may suffice to prove and confirm our first *Thesis* or Position, and to satisfy the rational and unbyassed, of that truth. I proceed now to the second, *viz.* That this progress and complication of *Pains*, *Tumors*, &c. are seldom determined and adjudged aright, except they present outwards and are discerned by the eye.

And

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And having remarkt the *frequency* of this *Series* among the sick and diseased, and its manner of progress ; we shall now take notice how seldom it is lookt upon and judged for the case in practice, but supposed to be something else, until *dissection* sometimes informs their judgment, when too late.

The *first* discovery of this mistake, and the argument drawn from thence sufficiently convincing, is from the *aims* of the Physician, the *Method* and Course of Physick, and *adaptation* of Medicines ; which being levelled quite beside the *mark*, does plainly shew, that this *Series* of Diseases is not thought of, when they lye but seemingly obscure, internally ; as very *frequently* they do, when diseases run to some height of severity, having no check or stop put upon them.

The *second* discovery or *conviction* of error (when too late) is from dissection after death, and is plain demonstration to the eye : as when Relations are not satisfied concerning the death of the Patient ; and the Physician dubiously or unsatisfactorily giving in the account ; dissection lays open, and presents to view a *Tumor* or *Ulcer*, *rottenness* or *putrid* decay of the part, *gangrened* or *mortified* ; which makes evident what before was little thought of. Now upon such miscarriage indemnification is thus framed with a *salvo judicio* : that when the *Corps* bears any of these characters, the account is given in, as plain to be seen, that the Patient
was

was in such a desperate condition, as it was impossible to *retrive* or recover ; and so the blemish is wip't off the Physician, and he passes for an *able* man as before ; when indeed this funeral conclusion was brought about for want of a *prevision*, true notion and due apprehension of this frequent progress of diseases (our subject) which might have been prevented or stopt, if the design of Cure had lookt that way.

Now the grand occasion of passing over and hiding this Series or commutation from Practisers, does arise chiefly from the erroneous account in the general division of Diseases ; *viç.* ranking all Diseases under these three Heads.

Similar.

Organical.

Common.

In the first rank (and to examine no farther for error) are comprised all distempers or intemperatures of the *first* or *second* qualities: by the first qualities are understood these four: *Heat, Cold, Moisture, Driness*; so that any person complaining of sickness, or not being so well, and altered from their wonted condition, the Physician examines the state of the Patient by this *triple division*, or some part thereof, to find out what *rank* the Patient comes under ; and according to order and method set down, he first inquires and feels what temper the sick is of, whether *hot* or *cold*, *dry* or *moist* : or whether there be a complication of these, as hot and moist, or hot and dry ; cold and moist, or cold and dry

And

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And finding the *Patients* case to be one of these, he pronounceth straight accordingly, that he hath such a distemper, which must be corrected and reduced to quality and good temper again. The diseased person being made sensible hereof, that he is *hotter* or *colder*, &c. than formerly, is well satisfied that the Physician hath hit it right; and this distemper being a grand one, must father all or most of the other ailments, as the off-spring from thence; so that getting but the mastery of this, all will be well.

The *organical Diseases internal*, being more difficult to be detected, are passed over as *obscure*; at least the disquisition is not sufficient, insisting too much, and relying upon the discovery of a disease or distemper in the *first* general division; that what pain there is here or there, it passeth for *wind*, or *obstructions* in the part. And as for the *third rank*, it is rarely thought of, except something present outward.

All which does appear from the endeavours of Practice, which more especially and most frequently do aim at, and are bent against diseases of the *first Classis*: some of which are so inconsiderable in the design of Curing, as not to be lookt upon for diseases, but only *Characters* and *Signals* following and depending upon diseases *per accidens*; with whom they appear in such degree, and vanish again, as diseases do increase or decrease, and go off.

To contract our Discourse into as little room as we can, and yet to prove our assertions clearly; I shall pitch upon one distemper only, *intemperies calida*, a hot constitution, a *febrile* heat or Feaver; the prime and notable distemper of the first rank, which makes the great *busle* in Practice, though to little, or bad purpose; (and by this you may judge of the errour and folly of the rest:) for by insisting so much upon this *heat*, the supposed obstacle of Cure, or the *thing* to be cured; the opportunity perhaps may be lost; but the Patient certainly injured by the vain use of Medicines levelled at this mark.

Few diseases there are amongst the *Chronic* or slow of motion, but some *febrile* or preternatural heat, (more than the ordinary and natural temper) does attend them; especially at such times, if the disease have any manifest intentions of degrees, or *Paroxysms* of pain: and scarce any among the *acute* or swift, but a brisk and high Feaver does always accompany: for in all cases where *pain* is continuing, especially if severe, a Feaver is adjoyned, and they become *fratres in malo*; or rather a branch from that stock, and the order of causation runs thus.

First, there is the *morbific* cause planted in this or that part, or *transient*; which is either some degenerate or peccant humor there infesting, or corruptive seminary (the fundamental matter of *Pains, Tumors, &c.*) or some

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extraordinary production ; as *stones*, *worms*, &c. These preternatural causes do seldom lye dormant but raise pain, by *obstruction*, by *oppression* or *compression*, by *convulsion*, *distention*, *corrosion*, *putrefaction*, &c.

The parts being thus affected and grieved, the *vital* principle residing as governor there, is hereby excited and irritated, to remove, expel and cast off the offending cause : this *strugling* and *irritation* of the life, is the very pain and anguish that is felt in the part ; for the *Organ* is not capable of pain, of it self ; but the *life* inhabiting and enabling the part to perform vital offices, that does *dolere* and *estnuare*.

Now a *Feaver* (which is *pain* diffused) arises from particular *pains* thus ; As the members or parts of the body being many, do consent with one another, some more immediately and peculiarly, than with the rest, by vessels of communication, partnership in office or vicinity ; yet the *life* being one *entity* or common being, extended and expanded throughout the whole fabrick of the body, cannot suffer here or there, but the *whole* is injured, disturbed and drawn into consent, more or less, manifestly or secretly ; and the *Spirits* (upon great occasions) are raised up in commotion throughout the body, as *instruments* to vindicate the publick from an enemy invading.

And farther, take notice that *particular* pains beget (the *general*) a *Feaver* greater or less, sooner or slower, upon a double account.

I. From

1. From the *Nature* and *Quality* of the Part, in formation and office.

2. From the *greatness* or *inconsiderableness*, *fierceness* or *mildness* of the morbid cause.

For example ; Sickness (which is pain) at the *Heart*, or *Stomach*, raiseth a Fever great, and soon ; and this by reason of the excellency and necessity of their offices, whereby the whole body consents forthwith ; that what afflicts these, is a general complaint more immediately : but other *parts* in a lower station, *subservient* and *ministerial*, whose function being not so general, but of particular and private use, do not communicate their diseases so soon ; nor the whole body so highly resenting their ill affects, because the publick can spare their offices, and be without their exquisite or compleat assistance for a time, without great complaint, or manifest want.

Secondly, the cause or morbid matter, being greater or less in any part, does thereby affect more or less, sooner or later : and therefore *sand*, or small *gravel* in the *Kidneys*, do not afflict the part, nor raise so great a disturbance in the body, as a *stone* there, that obstructs the *ducture*, and stops the current of the Urine, and is much more difficult to be removed. And sickness or pain at the *Stomach*, by a little over-drinking of good liquor, Wine or Beer, &c. is not so lasting, nor molesting, nor spreading in the effects over the whole body ; as a surfeit of *meat*, *fruit*, or an over-charge of

bad liquors ; these shall produce not only sickness or pain in the stomach , but sickness or a hot pain in the whole body , which is called a *Feaver* ; and this sickness may be dangerous, as sometimes it proves mortal.

Pain is fixed in one part , but the *Feaver* is universal , spread throughout the body ; for from this pain of a particular part , the whole life estuates , is incensed and disquieted : as if a cord be tyed or fastned at both ends, of great length and strait ; strike it hard in one place, and it jars the whole length ; but at the place struck , the vibration is greater and more manifest : So where the disease is seated, the *pain* is more apparent , and that part most sensible : where the *wound* is given, where the *oppression* lyes, where the *obstruction* is, where the humor is *corroding*, *putrifying*, &c. there pain is *eminent* ; limited or bounded and to be pointed at particularly , here and not there eminently : but from hence ariseth the *Feaver* , which is pain diffused, in a remiss degree , and seemingly of another nature or quality , a different thing supposed by some , therefore denominated a *Feaver*.

This *Feaver*, although it be a *pain* , yet it is not so felt by the Patient, nor so understood by others, because of the greater particular pain that drowned it ; and because of its expansion and latitude , all parts bearing their proportion and share ; so that where a *Feaver* stands alone without a particular pain in this or that part ;
yet

yet the Feaver, the general pain, is not so manifest to the sense of the Patient, because every part hath its portion, and therefore is not so discernable and uneasy: for a Feaver is pain expatiated through the body, and you are not so sensible of it, as when pain is contracted into a narrow compass, the rest being free and at ease.

That all *Feavers* are *pains*, greater or less, examine but the definitions of *Febris*, and that of *Dolor*, Feaver and pain, you will be fully informed how they agree; a Feaver being comprised under pain, as a *species* of that *Genus*, being a hot pain, or the pain of heat.

Dolor est tristis sensatio in tactu. Gal.

Febris est calor contra naturam in corde accensus, & ex eo in totum corpus diffusus, which is *Hippocratic* and *Galenic* Doctrine.

Now where there is heat, higher or exceeding that which is natural, it must affect the sense of feeling and cause pain: and although I do not like the definition of *Febris*, yet it will serve my turn here, being right, in the opinion of those Galenists with whom I now contend.

From hence we must understand (and be untaught again) that *Dolor* and *Febris* do differ as *genus* and *species*; a Feaver being contained under, and is one sort of pain, *viz.* a hot scorching pain; and sometimes a Feaver is a cold pain, as the rigor of intermitting Feavers (called *Agues*) do testifie. And since that all *Feavers* are *pains* little or great, we shall not need to

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institute a Method of Cure different upon the notion of a Feaver; but only having respect unto the cause that raiseth this feaverish or hot pain: and therefore *Feavers* are to be cured as other *pains* are; that is, by adapting Medicines to remove the morbidic matter or cause of pain, and not otherwise.

And here by the way I must observe the error and mistake of Authors, distinguishing Feavers into *essential* and *symptomatical*, whereas no Feavers are *essential*, but all dependent upon some disease, morbidic Miasm or seminary, and is a *Symptom* thereof.

Where the seminary or morbidic cause is fixed or seated, there is particular pain *eminenter* to be pointed at; and there is a febrile or inflaming heat, occasioned by this *Spina*, thorn in the flesh, which provokes the vital principle to estuation: this *heat* is carried and spread more remote, and conveyed by the venal and arterial current through the whole body; so that this pain being spread or scattered, loseth its denomination of pain, and then takes up the title of a *Feaver*: (as Tradition will have it) which excludes most *Practisers*, thinking now they have some new thing to deal with, and another disease: when indeed *Dolor* and *Febris* do not differ at that rate; and we may say, that pain is a Feaver *contracted*; a Feaver is pain *diffused*.

Now whereas it is vulgarly said sometimes, that the Patient hath no *pain*, but only sick at
the

the *Heart*, or the *Stomach*; this is very improper, and cannot truly be said; for *Stomach-sickness* or *Heart-sickness* is nothing but pain and anguish of those parts, which is *tristis sensatio in tactu*; it is feeling that makes you sensible of sickness at the *Heart* or *Stomach*, and by no other sense; and this is pain, but different from other pains, by reason of the *Organ* differing from the rest in structure and office; and also from their causes, which makes these sick pains to be various and different in themselves: So that all *sickness* of this nature and kind, is *pain*, tending towards and bringing on this Series of Diseases, the subject and design of our Discourse: but in regard these sicknesses are often taken off, and checkt, the progress is prevented, and it goes no farther than the attempt.

And farther, the reason why these sick *pains* do not produce and bring forth *Tumors*, *Inflammations*, &c. more frequently in the parts where they are seated, is because the humor or matter offending is not always fixed in the *Parenchyma*, fleshy substance of the member or any solid containing part thereof; but floating in some vessel or cavity; so that having no root and solid foundation, it cannot form a Tumor otherwise than by *obstruction* and *distention* of the cavous part; having no seminary for augmentation planted in the substance of the *Organ*. But this may happen, as sometimes it doth, that any sharp *serosity*, or eroding putrid matter, may excoriate the concave superficies of any du-

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cture, vessel or cavity of a member, planting an Ulcer there, which may produce sad effects, and compleat the course of our Series proposed *per saltum*; omitting these gradations of *Tumor* and *Inflammation*.

The result of our Discourse upon this second *Theorem* we shall draw out and sum up into six *Corollaries*, for the more distinct and clear understanding of this Doctrine.

1. That *Diseases* or *Intemperatures* of the first Classis, being most discernable and apparent, do interpose too often, and cover the common Series of Diseases chiefly to be feared.

2. That *hot* and *cold* distempers, generally attending most diseases, have diverted and biased *Practisers* from a true course against those diseases and causes thereof: for the *sign* of distempers being obvious and manifest to sense; the *diagn* abstruse upon a general false notion thereof, the process of Cure necessarily must be erroneous; not discerning from whence they did arise, nor upon what they do depend.

3. That these distempers of *hot* and *cold* do not arise *elementally* from any corporal constitution or composition of the four Elements (so supposed) their variations and predominations; but only as *effects* and *signals* discovering the *Crisis* and state of the vital principle, whether vigorous or depressed; whether in a natural placid condition, or disturbed and forced into a preternatural fiery temper.

4. That unequal *Temperaments* or *Distempers* of

of the first general Classis of Diseases, have so ingrossed the Practice of Physick, that most endeavors are spent thereupon, much time lost, and the more considerable and important overseen; as witness this our frequent *Series* of Diseases, seldom under consideration.

5. That where *pain* is seated in any part, being a warning-piece, or the first manifest gradation or step of this common Series of Diseases; regard there is mainly to be had for precaution, to obviate and prevent a farther progress of *Inflammation, Tumor, &c.*

6. That this *latent* and dangerous progress of diseases, being frequent, but *rarely* discovered, or sought for, hath brought more to the grave, than any complication or transmutation of diseases whatever: for although there be a vast number of diseases, whereunto humane bodies are liable; and many of them do come and go in the course of life; yet most of them in their height and contumacy, and such as become *mortal*, do terminate in this series, as the *Catastrophe* and last Scene.

Having proved in our first *Position* the frequency of this dangerous Series; as also in the second, the *latency* thereof, and the disguises that cover their transition from knowledge: I come now to the third and last *Thesis*, briefly to declare from thence the *fatal* consequents of not discerning this lurking train, but adapting Medicines to other purposes and diseases, supposed the grand complaint of the sick.

Many

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Many

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Many people upon the first seizure of sickness, and some a while after, complain of a *pain* particularly in the *Head, Breast, Bowels, &c.* here or there: this pain (especially if great) takes off the appetite, prevents sleep, and procures a *Feaver*: for all *acute* diseases are accompanied with *Feavers*, and most of the *chronic*; at least in their *Paroxysms* of intension and exacerbations, have a *febrile* heat attending them. This is the common road of diseases that are any thing severe; and such as are acquainted but with the common road of Practice, have their eyes upon this external appearance, and general outward garb, by which, as their compass, they steer and direct their course.

This *Feaver* (a great Bug-bear, not known but by its name) a *general* Symptom of all sharp distempers and dolorous diseases; being obvious to the standers by, and confirmed by sentence of the Physician, takes up most of their thoughts in design how to master and secure this common enemy that stands foremost in view: and as their eyes are most or chiefly upon the *Feaver*, so their fears are from thence, and their endeavors are bent to suppress and abate this *heat*, and their aims levelled at this mark: and where this *preternatural effluvia* is coming on, and feared only; or if already raised to a degree, all helps are then thought of, and used to damp and extinguish this kindling flame, as great and threatening danger from thence, which byasseth the *Physician* from his right aims at the *morbific* cause.

Hence

Hence ariseth all the inventions of cooling, and so frequently used in most cases: repeated *Phlebotomies*, *Ptisans*, *Juleps*, *Emulsions*, cooling *Apozems*, *Embrocations*, *Liniments*, &c. which make the great clutter of Pots and Glasses about the sick, and nothing more advantageous to the Apothecary than trifling away the time thus, with a number of these hazardous, but many times and too often, pernicious Medicines.

This mode of Practice, and these devices for cooling *feaverish* bodies, I suppose are taken up in imitation of *Galen*, a famous Master of this Art, who appoints exhaustion of blood by Phlebotomy *ad animi deliquium*, until the Patient faints: and large draughts of cold water, until the Patient turns pale, shakes or quivers, and the whole body cooled.

And an Author of our time, in his Writings *de Febris*, appoints the casements to be set open, to cool the sick (upon what design I know not, except to fan the house, lest the heat of the Feaver should fire the chamber.)

And a late *Author* of great Fame, in his Works *de Febris*, supposing Feavers to arise *à sulphure accenso & exaltato*, from a sulphurous deflagration of the blood, prosecutes upon the indication of refrigerating and quenching this fire by cooling Liquors: and for encouragement herein gives an example (I suppose his own Patient) of a young man about twenty years old, that by immoderate drinking of Wine,
fell

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fell into a Feaver, with thirst, and insignal burning about the Heart; who after Phlebotomy, and plentiful drinking of water (*aque fontane ingentem quantitatem ebibit*, the Authors words) he recovered. The success was good, and I may say, *wonderful*; but whether from the means or Providence, judge you: but I shall not imitate the Practice, lest *ten* dye for *one* that lives: but this learned Doctor hath highly deserved in some other parts of his Writings, and therefore I tread softly.

Now to consider all this in gross (for brevity sake) and apply it to our purpose in hand: these ways truly are very probable (not rational) to cool a feaverish, hot, sick man, and to make him in a short time *stone-cold*: and the probability thereof upon good ground does appear thus.

First, Upon the account of this *latent* Series and progress, *Inflammations, Tumors, &c.* ushered in by pain more frequently than discerned (as already proved) this *refrigerating* course, the insisting upon, or intermixing these cooling Medicines now and then, to quench a preternatural heat is *destructive*; at best a great *delay* and impediment in the Cure: and this is the common way of Practice, which needs no farther confirmation but a review.

Secondly, In all other cases, and from what cause soever a *Feaver* doth arise, this *juleping* and *cooling* mode of Practice, is dangerous more or less, as the case is in it self; but in no wise advantageous; making *acute* diseases to
commute

commute and terminate in *chronic* : and chronic or lingering diseases to hold on their course, and become more contumacious.

To prove the *first*, we shall compare that series and commutation of diseases, with the designment and nature of these *cooling* Medicines; and by that you shall see what probability and reason there is to expect from thence any good effect; but rather the contrary, promoting of mischief begun, and setting forward those diseases.

Whatever causeth *pain*, whether it be *obstruction* in the part, or *oppression* by indigested or degenerate incongruous matter; by *wind* and *flatulency*, by any exotic generation, as *worms*, *stones*, &c. any *Tumor* or *Apoſtem* breeding, *Inflammation* or *Ulcer* planted, &c. these cooling and cold inventions touch not the disease, (except to do mischief and exasperate) and remove no morbid cause: for the nature of these causes and diseases requires *Aperitives*, *Abstersives*, *Catharticks*, *Discussives*, *Diaphoreticks*, *Dissolvents*, *Sarcoticks*, &c. *pro re nata*, each case requiring some or more Medicaments of these Operations.

But these Coolers *è contrà*, stand in opposition, and act repugnant to these properties, and consequently to the Cures of those infirmities: by *obstructing* of Ductures and Pores, *incrassating* what should be attenuated; *coagulating* what should be kept fluid; *condensing* what ought to be rarified and discussed; *fixing* and

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and retaining what should be moved and sent off ; *impeding* transpiration, but *promoting* putrefaction : generally, they check and damp the power of Nature, endeavouring to extricate and quit her self from those incumbrances and growing evils that assault and beset her.

To make good the *second* part, that in what other case soever , a *Feaver* or vehement heat shall arise with *ebullition* of the blood and preternatural fermentation ; *cooling* Medicines are very prejudicial , in many cases *mortal* ; for whether it be a pestilential or other malignant *Miasm* , seminary or taint , or other impurity and feculency of the blood, that Nature intends by this febrile disturbance and irritation to throw off and separate, which Nature sometimes without help does perform and makes a good *Crisis* : but these *Coolers* act counter to , and prevent Natures good work , checking the fermentation , and thereby hindering the separation of any degenerated or noxious admixture.

And the reason of these ill consequents from *Coolers* , does mainly lye here : for as the stomach doth preside over , and hath great influence upon the other faculties and subsequent digestions, whose briskness and vigorous performance depend much thereon ; so likewise whatever subverts the tone of the *Stomach*, and flats the acuteness of this *principal* part , and prime office of digestion, injures, allays and abates the energy of the rest, impedes the *fermentation* of the blood for depuration in such cases , as also for

for conservation and supply in the constant daily work.

And although the Patient escapes this *Feaver* and comes off with life ; yet by this male Practice they fall into *Dropsies, Scurvies, Jaundies* and *cachectic* foul habits of body ; an obstructed or tumified *Spleen, Liver, Mesentery, &c.* or it breaks out upon the *Skin*, and some eruption or cutany defecation will appear in time : or it settles in some *Limb*, and disables the part.

And it is but reasonable to expect, that *Patients* thus cured, should soon be *Patients* again upon the old account, the relicts of the former sickness ; for that morbidic matter and cause of *Feaver*, being retained, by checking and cooling the *febrile* fermentation, and not observing *Hippoc.* advice, *Quò natura vergit*--- this morbus impurity and foulness must *precipitate* and settle somewhere, and then you may well imagine it will make some appearance or alteration in time upon some part or other ; and then an after-game is to be played ; for not having its due *fermentation, secretion* and pass-port formerly, when it did *turgere*, and was upon the flight, only wanted the Physician's direction and guidance, hinted by *Hippoc.* ἂ δὲ αἶμα ὅχι αὖ μάλιστα πέπη,--- *Aphor. 21. Sect. 1.* Now a hole in the skin perhaps is thought on ; an *Issue* for a tedious and troublesom vent, to discharge the matter, which a good laudable course in due time might have prevented.

And thus, or by this means the Patient comes
into

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into the Physicians hands again; and the same
especially that cured him of the *dangerous Fea-*
ver: and thus the supposed good Physician
drives on, and is thought a very necessary Advi-
sor and an able Assistant upon all occasions e-
merging. Truly this is according to the homely
Proverb, but *Tinkerly* doings, stop a *Feaver* (if
it can be this way) and introduce what is more
contumacious, difficult, and worse to be dealt
with.

But some may object and say, That *Lemons*
and *Oranges* are used in *Feavers*, and with good
effects from their cooling: I answer, That *Le-*
mons, Oranges, Barberries, and such like, are
allowable, and what good ariseth from thence, is
not to be ascribed to their *cooling* virtue (if any)
but to their *acidity*, which acuates and sharpens
the ferment of the stomach; by whose reinforce-
ment and strength regained by this means, the
whole body is refreshed; fares the better, and
some allay; at least more ability to bear the *fe-*
brile heat: and therefore likewise such Liquors
are to be granted the Patient for refreshment
and support, as are most agreeable to the stomach
and desired; and the dictates of Nature in these
cases are to be marked; who prompts for her
own help and satisfaction: and generally, the
Drinks so desired by them are *fermented* Li-
quors (no Juleps) *Beer, Ale, Cider, Wine, &c.*
and such are most agreeable to the stomach,
which discreetly used, are no promoters nor con-
tinuers of the *Feaver*; but beneficial in their
kind;

kind, and a relief to the sick : but always to impose medical drinks upon a weak sick man , as if he were to be nourished and live by Physick, is very absurd and irrational.

And here pertinent to our Discourse, I must recite what I have formerly noted elsewhere : but by the way I must tell you, wherein I differ from other Physicians, when I grant my Patients cooling Drinks, as Whey, Cider, or such like, when desired in Feavers , or hot bodies : they lay a stress upon Coolers, as principal means against the Disease, and to reduce the distemper ; I allow them not as Physick against the Disease , but as refreshment to Nature, being delighted therewith and coveted : So that I do not impose them as of necessity, because the Disease does not require it ; but observing the propriety of the body, being comforted and refreshed with such or such cooling Liquors. So that these are not given as Medicine (for they cure not , nor is heat to be regarded otherwise than as signal) but they may be allowed as refreshment. A labouring man that toils and heats himself, must have drink to refresh him : even so it is with a man in a Feaver ; his Spirits labour more than at another time, and more thirsty he is , requiring drink more than at another time, and it must be such as delights him, that Nature does desire ; not Barley-water, Juleps, and such sops, that the Patient nauseates, and give him no satisfaction. Tract. of the Scurvy, Chap. II. Edition 4.

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And in the same Chapter (controverting with Dr. *Willis* about *Antiscorbutic* Remedies) there is much more to this purpose, shewing the indirect proceeding against Feavers, with repeated Phlebotomy and cooling Medicines, whither I refer the Reader.

And here I might animadvert and take notice of the strange invention and irrational use of *epispastic* or blistering Plasters to draw away a *Feaver*; shewing thereby also that Feavers are wholly mistaken in the notion of them; but I must wave the Argument as collateral, which otherwise would interrupt our present occasion, and divert me from the direct prosecution of the business in hand.

Now in the close, to observe the order and dependence of this Discourse, and to take a review of the whole matter compendiously drawn up; you will find we have not deviated from the subject proposed, but prosecuted directly the scope of this designment, which in short is thus.

That this latent internal *Series* of Diseases (more frequent than discerned) their dangerous *transition* and *complication* is masked and covered with an apparent or outside garb of a Feaver, or febrile preternatural heat; which *signature* and external *character*, hath so ingrossed the Physicians endeavors, and taken up the Practice of this Art, that little hath been done in searching out the *radix* of diseases, and opportunity neglected for prosecution against the *morbific* causes.

And

And for as much as this *Feaver* being only the estuation of the vital Principle throughout the body, generally attending these and most other diseases, is no farther to be taken notice of, than as *signal*; shewing the cause to be greater or less in provocation, as the heat is more intense or remiss; and does in no wise divert the Physicians intentions and design of Cure; nor ought to be applied unto, since it is only a *consequent* and *dependent* occasionally, from the morbidic cause: which *febrile* heat riseth and falleth, as the said cause does more or less provoke and irritate; and vanisheth quite away when that cause is removed, or ceaseth to disturb: It necessarily then follows, that these *Coolers* generally used and mainly insisted on, are generally *noxious*, often *mortal*: giving great advantage to the train of diseases (our subject) towards a Cure whereof they contribute nothing; but *è contrà*, promote the progress.

I might have amplified and enlarged this Discourse in several parts thereof; but this will suffice at present for a dawning and discovering light; which hereafter may appear with greater lustre, as occasion shall be offered by any opponent to these Truths.

And thus much in general touching this Series of Diseases; their *latency*, their *frequency*; the danger by *inadvertency* and improper mistaken means, and too late discovery.

Our next undertaking is, to view more particularly the *gradations* of this progress, tracing

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from stage to stage, and remarking the *capital* occurrences, the chief causes *antecedent* and *conjunct*: beginning with *Pain* the common leader, or warning Symptom.

*Pains afflicting humane Bodies, the
different Nature and Causes
thereof.*

OF all *Symptoms* that attend, or are the consequents of Diseases, *Pain* is the most troublesom and irksom to bear. *Weakness* and *languishing* are tolerable evils; but *pain* is restless, tormenting and full of complaints. And although this be the worst (in extremity) to abide, and the most mournful accident that befalls mans Body; yet no part thereof hath a privilege by Nature to be exempt, or protection from this calamity: the reason whereof we will inquire into.

All parts of the Body wherein is the sense of *feeling*, are liable to *pain*: and by virtue of this sense, *pain* is communicated to this or that part: and therefore *dead* Bodies, parts *paralytic*, *benumbed* or *mortified* are not capable of *pain*, because in them there is not that sense of *feeling*: and although the *Organs* of the other senses are subject to pain, as the *Eyes*, *Ears*, &c. yet *pain* is not proper to them (*quatenus*) as they

they belong to those senses ; but as the sense of *feeling* is seated there also , having a greater latitude than the other ; and is extended through the Organs of all those *senses*. True it is ; the other *senses* have their inconvenient and disturbing objects, as the Philosopher says, *Excellens sensibile lēdit sensum* : as the light of the Sun, or flame is troublesom to the *Eyes* ; and great noise, as of a Bell or Gun, if near, especially sudden and unexpected, does offend the *Ears* : and a strong or stinking *scent* is offensive to the *Nose* : and an ungrateful *taste*, as too *salt*, too *sowre*, or *bitter*, is unpleasant to the *Palate* : but *pain* affects the sense of feeling.

Parts therefore that are capable of *pain* are endowed with the sense of *feeling* ; and those parts are *membranous* ; that is, they are invested with , or lined with some Membrane , by which the sense of feeling is communicated ; and hence the *Bones* are capable of *pain*, by the Periosteum, that Membrane which covers them. And this sense as it is more general, extending through all parts , and more useful than the rest of the senses ; so the disturbance arising thence is more insufferable and grievous to be endured : and better it is to want any other *sense*, than this, yea all ; for where feeling is departed , the life is ceased in that part. This sense therefore being *supreme* , the defections and disturbances thereof must be of greater importance and concernment than the rest.

The other *Senses* are confined to, and exercise

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cise their functions in one *Organ* or part of the Body, the Eye, the Ear, &c. but *feeling* is not restrained to so narrow a compass, but is seated in all parts of the Body, even in the *Organs* of those other senses. The great *Prerogative* of this *sense* above the rest, having no limits, but reaching through the whole Body, and exercising its power among the other senses, and an inseparable consort with the life; were worth inquiring into the reasons thereof, if time would give leave for that diversion.

What *pain* is, scarce any one but can tell; and some by woful *Experience*; whereby they will consent with the definition thereof, *dolor est tristis sensatio in tactu*: pain is a trouble arising in the sense of feeling: but that which is so plainly felt, is not very easie to be understood from whence it does arise.

The *Causes* of pain are as various as the *Objects* of the sense of *Feeling*: for whatever objects assault that sense violently or extremely, as too *hot*, *cold*, *hard*, *sharp*, *heavy*, &c. are offensive to the Organ of Feeling, and do raise pain.

Concerning the *approximate* cause of *Pain*, there are several opinions; I wave the more extravagant and improbable, and shall recite those in which the most *Philosophers* and eminent *Physicians* do consent and pitch upon as most agreeable to reason.

One Party asserts, That a sudden and violent mutation of the *active* qualities, or the *tactil* qualities

qualities suddenly and violently acting upon the sense of feeling, are the approximate cause of pain.

The other Party determines, That *solutio continui*, a solution or disjunction of continuity is the immediate cause of all pain.

The third Opinion joyns these two together, and will have pain to arise from them both; according to the definition of *Plato*: *Est itaq; dolor tristis in sensu tactus affectio, à membri intemperie & continuitatis divortio subito facta*. And *Hippoc.* before him taught the same doctrine: *Quæ naturam (inquit) mutant ac corrumpunt, dolores excitant*. To which *Galen* does subscribe.

Now to comment a little upon these different Judgments; I cannot but observe and do owne that there is something of probability and reason in these several sentiments; but not a full satisfaction to the matter queried; nor the whole truth rightly stated: and for this reason I am the more nice and strict in this inquiry, because from hence the nature of *Anodynes* or asswagers of pain are discovered; and this is the groundwork upon which they are formed and rightly adapted.

I allow that *unity* is the perfection of Bodies, and is necessary to perfect *sanity*; disjunction or separation dissolves the harmony, and leads or is the progress to destruction: for whatever tends to disjoyn or make a separation of parts, does threaten to ruine the whole. And true it

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is, that the *active* qualities or *tactil* objects, do cause *pain* as they do make their impulsions violently upon the Organ of *Feeling*; which when they do it moderately, placidly and amicably, they cause pleasure or no pain. But whether the impetuous and vehement acts of those Agents raising pain, do always cause a solution of continuity approximately and immediately, is much to be doubted.

I yield that the vehemency of these *tactil* objects may procure a solution of continuity sometimes, as we see from *pain*, that *Impossthumes*, *Ulcers*, *Gangrenes* and *Mortifications* do follow; but these are not inseparable and necessary consequents, for they happen but sometimes: pain may continue for a time, cease again, and no breach of continuity remain as an effect thereof.

To which our Adversaries have this evasion by way of Reply; That pain is caused *à continui solutione, non à soluta unitate*: which, as I conceive the meaning, is as much as to say; solution of continuity in *feri* is sufficient, though it be not in *facto esse*.

But to pass over this Sophistry, as not worth the expence of time to lay it open; and if we make appear that the whole matter or controverse is bottomed upon this error, mistaking the cause for the effect, and the effect for the cause. *Cujus contrarium*---- then the pleadings of our Antagonists will be put to silence as absurd, the doctrine laid aside, and practice grounded upon better principles. They

They affirm *solution* of continuity to be the approximate cause of *pain*; the contrary whereof we will set forth and prove, that *pain* is the cause of *solution* of continuity. And here we must first distinguish between violent external Agents; as *sword, staff, bullet, fire, &c.* causing *wounds, contusions, fractures, combustions, &c.* and internal causes gradually arising in the Body, as products of a degenerate state.

In the first cases, *solution* of continuity causeth *pain*: as when the wound is given, *pain* follows as an effect: so likewise upon a sudden *fracture*, or *rupture* in the latter, *pain* precedes as the approximate cause, *solution* of continuity comes after as the product or consequent. For example; some indigested or degenerate matter lodgeth or fixeth in this or that part of the Body, Nature not able to subdue or transmit it away, this like a *thorn* irritates and provokes the vital principle to a disquietness and disturbance, which is *pain*: this *pain* draws a confluence of humors to the part grieved, and increaseth the first offending matter, causing *Inflammation* and *Tumors*; this apostemates, and then breaks forth into an *Ulcer*.

Observe the *Series*, first here is peccant matter as the *occasional* cause raising *pain*; this *pain* attracts humors from other parts, which being transplanted out of their proper place, they degenerate, corrupt, and then produce an *Imposthume* and *Ulcer*. Thus you see *pain* goes before, *solution* of *continuity* follows after; and there-

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therefore it is plain, as in this, so in all other cases where separation of unity does happen from an internal cause arising in the body ; that it is the *consequent* of pain, and not (as those learned men would have it) the approximate *cause* of pain.

To illustrate this truth a little farther, and that you may the better understand and have a clearer satisfaction herein (*practice* depending upon it , I mean the allay or remove of *pains*) consider and know, that the sense of *Feeling* being spread through the whole body , is as the last or inmost covering, that does inwrap or in-fold the *life*; and is as it were the watch or guard upon the confines thereof. Now any thing that does stir up *Feeling* , that thus nearly and intimately approaches the *life* ; if it exceed the bounds of moderation and is violent, if it be any way unnatural or injurious, it raiseth a disturbance in the *vital* principle of that part, which is pain : so that the assault is first made upon the *life*, which governs and preserves unity and continuity of parts ; but that *vital principle* being fretted , distracted and put by its placid, regular œconomy and government, the *Organ* perisheth as the *life* of the part decays, or is out of course ; being then unable to protect and preserve it.

From hence I am perswaded to believe and must assert, That the *approximate* cause of *pain* is every thing that does intimately and approximately affect and disgust the *vital* principle in every

every part pained ; which pain is the *estuation*, *anguish* and *fury* of the life or vital principle, which does *dolere*, being exasperated and provoked by those causes : and if solution of *continuity* does happen upon this disturbance, it is wrought and caused by the *exorbitance* and *enormity* of the vital principle, deserting or being put by the charge and due management of the part.

Moreover, *pain* sometimes continues long by *intervals* and *remissions* to molest a part, and no separation of unity to be caused thereby ; although it is an interruption and breach of Harmony : so that this *ira sine dolor*, this pain of the vital principle does not always arise to the height of producing discontinuity ; and is so far from being the approximate *cause* of all *pain*, that many times it never happens either before or after pain, to be a *cause* or an *effect*.

Now what this vital principle is, residing in and governing every part in their several functions of vitality, whether it be *Anima* ; or *Archæus* according to *Helmonts* doctrine ; or *spiritus impetum faciens*, according to *Hippocrates* ; I shall not enter into the controversie, because it will require a large discourse, or rather a peculiar *Treat* to determine this *Problem*, and clear up the truth of our novel opinion, disentangling it from the objections and prejudice of ancient received doctrine ; which will disjoyn and delay our matter chiefly intended, therefore I forbear the digression, and proceed.

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Pains are *various*, or do affect the sense in a different manner ; and this either from the nature of the *part* grieved, or from the variety of *causes*, or both.

Now the nature and condition of parts are different and various these ten several ways, or may be reduced to these heads: *Ducture*, *Figure*, *Situation*, *Composition*, *Beginning*, *Progress*, *Substance*, *Temperature*, *Number* and *Office*. And as parts are varied by these differences, so pains thereby are made various, and not only pains, but also all other Symptoms and diseases have a *specification* from hence.

Pain sometimes is obtuse or heavy, as if a weight were pressing upon the part pained ; as when the Parenchyma of the *Liver*, *Spleen*, *Lungs* or *Kidneys* is grieved ; and this by reason they hang or depend on Ligaments and Membranes.

Pain sometimes is *acute*, sharp and pungent ; as if the part were perforated or pricked with a Needle ; as in a *Pleurisie*, and this is caused from a thin, acrid or acrimonious humor penetrating the *Pleura* ; for nothing but what is subtile and acute can procure this or the like punctures, and invade the dense substance of a *Membrane*.

Pain sometimes is with *pulsation*, that is, a beating pain like to the motion of the Pulse : and this pain happens commonly upon an *Inflammation*, and also where an Artery is seated in the part ; for where there is no Artery, there is no *pulsation*, it being the office of this Vessel
only

only to make a pulse. From hence *Galen* 2. de loc. affect. 3. took notice, that upon an Inflammation of the *Lungs* or the *Pleura*, there was no pulsation or beating pain, because there were no Arteries in the parts.

Pain sometimes is *mordacious* or biting, from sharp humors vellicating the sensible parts.

Pain sometimes is *frangitive*, as if grinding or bruising; and this is proper only to the bones, or rather the *Periosteum* that covers the bone, by which *Membrane* the bone is made sensible, and the pain lyes deep.

Pain sometimes is *tensive* or stretching, and this happens from a repletion or fulness of some humor, wind or vapor, filling and extending the part: if this stretching pain be *cum gravitate & pondere*, with heaviness or weight, then you may conclude it is humoral, or something of more solid substance; but if the extensive pain be without weight, then it signifies wind or vapor: as very often such are *Colic* pains, from a collection of wind between the tunics of the guts.

Pain sometimes is *convulsive*; and this is proper to the *Nerves* and *Tendons*; because the nervous filaments are so united, that they cannot be torn, but are contracted to their original.

Pain sometimes is *lacerating* or tearing: and this is proper to the *flesh*; because the flesh hath Fibres and small Nerves not so united as the Membranes, and therefore *à causa solvente continuum*

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tinnum are easily lacerated. And thus much for the various kinds or different sort of pain : next the *situation* or *extension*, and the *duration* is to be regarded.

Pain is either universal affecting the whole body, from some general cause ; as in *Fevers*, *Agues*, &c. Or else pain is seated in some particular region or part of the body ; as the *Head*, *Breast*, *Stomach*, *Belly*, &c.

Pain sometimes is more outward or external upon the *superficies* of the body, whose seat is more easily discovered and known, laying hand upon the place, by the Patients direction. Sometimes pain is *internal* and deep, with difficulty to be certainly determined, which part is grieved, and requires good *anatomical* judgment to assign the part or member. From hence *pains* some may be said to be *manifest*, others *abstruse* ; as also from their causes, evident and latent.

Pains some are *constant* as to *place*, or fixed ; others *erratic* or shifting from one place to another.

Pains some are constant as to *time*, or continual ; others intermitting and by intervals, having cessation for a time and returning again.

In all pains there ought to be considered these four things : the *Greatness*, the *Kind*, the *Property*, the *Place*.

Greatness and vehemency of *pain* does arise from the greatness of the offending cause, and the sensibility called tenderness of the part. All
pain

pain spends or wears and abates the strength of Nature; but violent and vehement *pain* requires sudden relief, lest the sick faint or expire. Upon the first assault Nature does insurge and raiseth all her strength to bear, resist and overcome the offending cause, and cooperates vigorously with the means for relief and ease; but help not coming, strength abates, grows weaker and weaker, as not able to hold it out long: and this is perceived and known by the Pulse, which at the first access of great *pain*, beats high, strong and quick; but afterwards falls off, grows weak, small, slow, or swift, labouring and languishing,

Secondly, The *Kind* and nature of the *pain* is to be observed and noted; whether *tensive*, *heavy*, *acute*, *biting*, &c. that accordingly fit Remedies may be adapted to such variations.

Thirdly, The *Property* is to be regarded; whether pain be moveable or fixed: continual or constant; or returning by intervals; whereby the fallacy or certainty of the Cause may be adjudged.

Fourthly, The *Place* of *pain* is to be distinguished: for that which will be a good remedy and proper to one part or member, may prove of little advantage or injurious to another; because some parts have *Antipathy* or disgust and dislike to some remedies, which *ratione morbi*, in respect of the *Disease* may be proper and requisite, but the *part* will not admit it: as *Oyl* generally is *anodyne* and asswaging;

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ing; but not in pains of the *Eyes*, for there it is injurious to the part: and a puncture of the *flesh* and a puncture of a *Nerve*, will require different remedies. And upon this account *Galen* 4. *Meth.* 5. would not allow of *Suppuratives* to every wound, and chiefly in the *Tendons* and *Nerves*, and condemns those *Chirur-gions* that make not that distinction.

And here you must diligently search and examine, whether the pain be *idiopathical* or *sympathical*: that is, whether the part pained does suffer *per se*, from a cause residing in that part; or whether the cause lyes in another part, and the part pained does complain *per sympathiam seu consensum*, only by consent from some other diseased or distempered part.

And this distinction ought strictly to be observed, without which no Cure can succeed: for if the *peccant* matter or cause offending lye in one *part*, and the remedy be applied to another, you cannot in reason hope for a good effect thereon. This therefore is to be received as a fundamental Truth, That all parts of the Body may fail in their office and true performance of their duties, *vel vitio proprio, vel alieno*, either by a deficiency of their own, or depravation and injury from other parts: and this not being duly taken notice of by some *Practi-sers*, no wonder if *Patients* languish so long under their hands, waiting in vain for their relief and Cure: for, finding the Patient to complain of *pain* in this or that part, they think of no-thing

thing but applying to the *part pained*; concluding with the common saying: *Ubi est dolor; ibi est morbus*, which is oftentimes a great mistake. For example: the *Head* akes and complains many times, not from any defect of its own; being firm and sound; but either from the *Stomach* being foul or otherwise diseased, whose ill affects also are communicated to the *Head* by the *Nerves* of the sixth conjugation: sometimes from the *Spleen*; sometimes from the *Womb*; and sometimes from other parts, by reason of the *Nerves* propagated into all parts of the Body, having their original from the *Brain* and *spinal Marrow*, derived from thence and of the same nature; from whence the *Head* does consent with all those parts.

And the *Arm* may complain, wanting its power of due motion or strength, although the *Arm* be sound and well; yet if the *Nerves* that supply those *Muscles* of the *Arm* with *Spirits* be hurt, the *Muscles* are deprived of their use or act deficiently and depravedly. As by a blow upon the *Back* (or by other causes there not so manifest) the *Arm* may fail in its due motion, the *Nerves* being injured: in vain then it is to apply *Topical Medicines* to the *Arm*, but application must be made to the *Vertebrae* of the *Back*, from whence the *Nerves* are derived and implanted into those *Muscles*.

And since the several parts of the Body do complain, sometimes by their own fault or decay in themselves; and sometimes only by injury

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transferred or received from other parts; we will consider how many ways there are for parts of the Body to be ill-affected and receive prejudice one from the other.

The *Sympathy* or consent of parts, whereby one suffers from another, may arise upon a treble account.

1. *Per Sympathiam generis.*
2. *Ob Familiaritatem operis.*
3. *Propter Vicinitatem.*

First, *Per Sympathiam generis*, by which we understand that consent and affect that is communicated by continuity of parts of the same kind: as when the *Neck* being hurt, the *Hand* consents and complains; because the Nerve serving and coming down to the *Hand*, is derived from the *Neck*: and this way of consent may also be effected, not only by the long *Nerves*, but also by the long *Muscles*, and the *Veins* in other parts: as sometimes it happens that the *Leg* is stiff and wants its flexibility and bending inwards by reason of some disease, not in the *Leg*, but in the *Hip*, where the original of the *Muscle* is, that serves for this motion; and therefore erroneously some have applied *Fomentations*, *Unguent*s and *Plasters* to the *Leg* upon this supposition, *Quòd ubi est symptoma, ibi sit morbus*; not considering that the *Tibia* does suffer by consent, and the root of the disease lyes in *Coxendice* where the *Muscle* does arise. And thus it falls out very often, that the *Dis-*
ease

ease is far distant from the *Symptoms*; and therefore the original and progress of the Muscles ought diligently to be observed in such cases as these, that the part *primarily* affected, and the part affected by *consent* may be distinguished, else the designment of Cure will fail and be unsuccessful.

Secondly, Consent of Parts is procured *ob Familiaritatem seu per consortium operis*: and this consent is common to all those parts that are ordained by Nature to concur together in some common office: and thus it is between the *Womb* and the *Dugs*.

Thirdly, Consent of Parts is frequent *propter Vicinitatem*, by reason of vicinity & adjacency: when parts are situate near to each other they are mutually affected, either by some sensible passages or insensible, for *totum corpus est perspirabile*, the whole body is perspirable by Pores latent and invisible, by which there is conveyance to and reception from each other, and do thereby *sympathize* with the good or ill of one another, although the ways of communication are not manifest: and thus it is between the *Stomach* and the *Lungs*, and is easily perceived by such as are *Asthmatical*, *Phthisical* or have Coughs, that by eating or drinking this or that, those infirmities will be exasperated and made worse, almost presently: and *è contrà*, they will receive some ease and benefit by that which is good, soon after it is received into the *Stomach*; long before it can make a progress the common

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way out of the stomach. And this consent likewise is between the *Oesophagus*, the mouth of the *Stomach* and the *Heart*: and thus it is between the *Bladder* and the *Intestinum rectum* the last Gut; and from hence pains of the *Bladder* are mitigated and eased by *Clysters*, through insensible passages, and not by any manifest ducture or Vessel of communication.

From hence we may learn by such Examples, that *Sympathy* and consent of parts is strictly to be marked, else it is not possible to know where the root of a Disease is, and from whence pain or other Symptoms do arise: for, one part may be pained, and the disease lye in another; and if this be not rightly distinguished, there cannot be a true *adaptation* of Medicines, nor due *application* made where it ought to be, which renders all endeavors frustraneous.

But to descend from *generals*, and to make our Discourse more profitable and satisfactory to the *particular* cases of the Reader, inquiring after his own peculiar concern and present complaint; we will take notice of some pains incident to *particular* and *principal* parts of the Body remarkable and frequently occurring, examining their causes.

Pains of the Head.

THat the *Head* akes, every one can tell that suffers under it; but the *causes* and the *parts* affected distinctly, are known only to the *Physician*: and he by questioning and examining the *Patient*, draws his conclusions by collating the several answers, and makes Judgment thereupon. All which depends upon a due observance of these four Particulars, rightly to determine the case.

First, *Inquiry* is to be made of the Patient concerning his course of *life* for some time before, whether regular or irregular; in labour, exercise, or ease; if thereby any thing hath been done to procure or introduce the present complaint, and of his former state of *Health* and *Sickness*.

Secondly, Of his state and condition of *Body* as it *now* is.

Thirdly, The *place* or seat of *pain*, the compass and extent of it.

Fourthly, The *quality* or condition of the *pain*; vehement or moderate, continual or intermitting, acute or obtuse, &c.

Having made disquisition by these *Topicks*, and traced the *Patient* through these grand inquiries; you will then understand something of the *rise* and *progress* of the pain sought after, giving you then occasion to take a farther pro-

spect and consideration of the various differences of *pains* in the *Head*, wherein your present case will be found, and exhibited to your view, as followeth.

Head-aches are either more *general* and dilated, affecting the *whole*; or else *one* side of the *Head*; or some particular part, as *Forehead*, *Temples*, &c.

2. Head-pains are either *internal* or *external*.

3. *Idiopathical* or *Sympathical*.

4. *Recent* and of late standing, or *inveterate* and of long continuance.

Pain of the whole *Head* or major part does denote the cause to be more *general* and of large extent; as in *Feavers* and *plethoric* persons, wherein the whole body is distempered, and from thence the whole *Head* or most part therewith affected.

Pain in particular places; as of the right or left side, fore-part or hind-part, the top or the crown, signifies the cause to be, or act there only; and does arise from some defect or trouble in the part it self, by some peccant humor there bred, or by *transmission* of morbid matter from, or by consent with some other part diseased, adjacent or remote. As more particularly hereafter.

Now you must understand, that although every person seems to be equally disposed alike, and liable to these *pains*; yet it is much otherwise; for some are often complaining of *Head-ach*,

ach, some rarely or never: and this by reason of the different *fabrication* and formation of parts, as well within as without the man; and also by reason of the *soundness* and strength of parts that some have above another; by which they endure long, and free from pain or other infirmities.

Internal pain is seated within the *Cranium* or Skull, and signifies the *Brain* it self, or *Membranes* investing the Brain; or some *Vessel*, *Vein*, *Artery* or *Nerve* to be affected: if the *Brain* akes, the pain is obtuse and heavy, the Patient is much inclining to sleep or drowsiness: so likewise when the *Veins* are molested, the pain is remiss: but if the *Membranes* or *Nerves* be the complaining parts, the pain is more acute and punging; and then it reacheth commonly to the roots of the *Eyes*; because these *Membranes* do cover the *Optick Nerves* which lead to the *Eyes*: and it may be known what *Nerve* is affected, by the part consenting, which that *Nerve* does supply and serve; and thus sometimes the *Ear*, or *Tongue*, sometimes the *Shoulders*, or *Breast* complains, by that *Nerve* inserted into them for their use: but if an *Artery* be the place, then the *pain* is beating, Pulse-like.

External pain is superficial and without the *skull*, shewing that the *Pericranium* or *Membrane* covering the Skull is the part grieved: and sometimes the *Cutis* or outward skin only, and then the pain is more remiss; but both are

known and aggravated by compressing the part or place: and if the pain be in the *fore-part* of the Head, and extend to the Eye-brow, the *Periosteum* is affected.

Pains of the Head *per essentiam* or Idiopathical, are when the cause of pain is seated in the part pained, by reason of *debility* or *dyscrasie* and infirm state thereof: from whence ill matter is congested and accumulated, causing a disturbance or distemper; and sometimes pains fixed from extraordinary productions there ingendred and bred; as worms, stones, &c. as hath been noted by Authors of repute and credit: *Hollerius*, *Schenkius*, *Kentman*, and others.

Pains of the Head *sympathical* are when the cause lyes remote, and the part pained suffers by *Sympathy*, transmission or consent from other members, and not by any proper defect or disability of its own. And thus the *Head* is very apt *compati* to suffer and condole with most parts of the Body; by reason the *Nerves* are branched forth and dispersed in all parts of the Body from the *Brain* and *spinal Marrow*; which being of exquisite sense does affect their original and fountain by this communication and intercourse with other parts: and not only by the *Nerves* coming from the *Head* is this consent maintained, but also by the *Veins* and *Arteries* going from other parts up to the Head, conveying good or ill. Hence it is, that very frequently the Head is pained from distempers of the
Stomach;

stomach ; sometimes from the *Spleen* , *Womb* , *Intestines* , &c.

Having given you the various differences of *Head-pains* as to the quality or condition of them, and also pointed at the several parts affected *per se* & *per consensum* : I come now to set forth the causes or rise of these pains from whence they spring ; whether generated in the *Head* , or communicated to it from other *parts* .

Causes of *Head-achs* or pains are , *external* and *internal* .

External Causes may be such as these ; as when the *Head* is exposed to *heat* or *cold* , a strong *scent* sweet or stinking, *Fumes* or *smoke* , a *blow* or *fall* , &c. occasioning disturbance of the *Spirits* , *Obstructions* in the *Pores* and *Vessels* , *Inflammations* , *Tumors* or *Impossthumes* .

Internal Causes are, sometimes *plenitude* or fulness of blood , which then upon small occasions is ready to estuate and ferment, causing extension of the *Vessels* and *Membranes* : or else depravation and foulness of the blood which may offend the *Brain* , or other parts of the *Head* by its noxious properties.

Now the degeneration of the *blood* from its due and laudable state , to an evil and bad condition is various, and does manifest it self by divers *Symptoms* in several parts of the *Body* ; and also when it is let out of the body , by *colour* , *sapor* , *consistence* , *heat* , &c.

Either the blood is impoverished and deficient in vital *Spirits* and heat , slow in *motion* ,
feculent ,

feculent, *gross* or *grumous*, and thereby apt to be *stagnant* or obstruct: or else too hot and fiery, causing inquietude of the Spirits and irregular motions of that vital stream, disturbing the Head with pain and watchfulness.

Secondly, The *blood* degenerates sometimes from its Balsamic qualities, into an acrid, sharp or acrimonious condition; and then most commonly there is an abounding *serosity*, or a superfluous *latex* or water; which state of the blood, as very remarkable, causing many diseases, I shall set forth in another Work (*Deo volente*) to be made publick.

Thirdly, The *blood* may be contaminated with a contagious, malignant or virulent *Miasm* and taint; as in the *Plague*, small *Pox*, highly graduate *Scorbute*, *Venereal Lues*, (as more fully appears in my Tracts of the *Scurvy* and that of the *Venereal Lues*.) In all which cases the Head frequently is offended and suffers pain.

And here also we must account amongst the internal causes,

Impotency and weakness of some *Organical* parts of the *Head*, not performing their office.

Obstructions of some ducture or porosity, by *constriction*, *compression* or *coagulation*.

Congested matter infesting any part of the Head raiseth pain.

Wind or flatulent Spirits roving here and there may produce the like.

Watching unseasonably, which tires the Spirits, causeth disturbance in the Head.

Immoderate *study* or cogitation weakens the Brain, and renders it liable to pain.

Violent *motion* agitating the Spirits furiously, and driving the humoral currents out of their natural placid course, discomposeth the *Head* and may cause *pain*.

Immoderate *Venus*, or long forbearance : the first by too great exhaustion and draining the *Nerves* ; the latter by *plenitude*, over-charging the *Genital* Vessels, reverberating back, or by consent affects the Head.

And now briefly I shall shew here, what *parts* chiefly and frequently the *Head* consents with, from whence internal causes of *pain* are communicated ; and as these *parts* are well or ill by intervals, so the *Head* is better or worse thereby.

The *Stomach* in the first place, as being the general and grand office of preparation to supply the whole body with nutriment ; so is it the part that most frequently afflicts the *Head* by communication, through Vessels of intercourse conveying to each other.

The *Head* complains from the *Stomach* either *before* meat, when supposed to be empty ; or *after* meat, when replete and filled.

If the *Head* complains before eating, it argues the *Stomach* to have some remainders or relicts from former digestions not wrought off, that does disturb the *Stomach*, and from thence the *Head* : if *after* meat the *Head* akes, it does declare the *Stomach's* indisposition to digest, and imbecil-

imbecillity to overcome what is received, and labouring under the burden, the *Head* suffers also.

Now to know that the *Stomach* is not in good order or ability for the true performance of its office in digestion, is manifest by these signs: *Vomiting* or *nauseating*, *pain*, *oppression* or *heaviness*, *eruſtation* or *belching*, want of *appetite*, or *thirstineſs*.

But here by way of caution in this consent between the *Stomach* and the *Head*, you must rightly distinguish, lest it happen, as sometimes it doth, that the *Stomach* suffers from the *Head*, and not the *Head* from the *Stomach*: and since the consent is reciprocal and mutual, you must nicely observe which is the part primarily affected, and which the part by consent; else endeavors of relief will be frustrate, if you begin not with the part *primariò* diseased, to free and set that right, for then the other spontaneously and of course will be reduced.

The *spleen* being ill-affected, draws the *Head* into consent sometimes, and participates of its evil: and this is to be known by examining the *spleen*, whether any Symptom of disorder or distemper is manifest there or from thence. Now the signs of a diseased *Spleen* are these; *pain*, *hardness*, *tumor* or *extension*, *flatulent* motions in the left *Hypochonder* or side under the short *Ribs*: And most commonly the *Head* is affected or pained on the same side, or else the fore-part.

If the *Liver* occasions the disturbance or pain in the *Head* ; for the most part the *pain* is seated on the right side , and then some Symptoms of a distempered *Liver* will appear ; as *heaviness* or *fulness* in the right side , *hardness*, *pain* or *heat*, affecting also the *Stomach*, and causing thirst ; also driness or heat in the palms of the *hands* and soles of the *feet* : and as these signs have their intention or remission, so the *Head* is better or worse.

If the *Womb* be in fault , and cause pain of the *Head* (as frequently it doth by the great communication and consent between these parts) then either there is a suppression of the *menstrual* purgation ; or irregular and out of due course , not keeping the due times ; or insufficient in quantity , or abounding : or too long retention of *semen* ; or too great a profusion and wasting. Some of these causes are sufficient , not only to disturb the *Head* , but also divers other parts of the body ; and these pains of the *Head* arising by consent from the *Womb*, do most commonly affect the *top* or *hind-part* of the *Head*.

If from the *Intestines* pains of the *Head* do proceed, then either *worms* are bred there ; or the *Guts* are troubled with *sharp* or corrupt humors ; or else there is *costiveness* and siccidity of the *Bowels*, whereby the *Excrements* are baked and hardned, causing too long retention ; and from hence by *Vessels* of communication the *Head* complains also.

If from the *Kidneys* the Head is grieved; then inquire into the condition of the Kidneys, and you will find some signals of a Disease there: either *stone* or *gravel*, or a sharp *Serum*, an *Inflammation* or preternatural *heat*, an *Ulcer* or *Excoriation*.

Now as concerning the Cure of *Head-achs*, and likewise of all pains that arise by consent from other parts, take this general Rule; That in the first place application be made to the part *primarily* affected, to reduce that into a state of integrity; then consider the part that suffered by *communication* and participation, if by continuance or length of time, any impressions remain there, or debility, that may require help, although the *foundation* or first cause of complaint be removed; else you begin at the wrong end: for in vain it is to endeavor amendment in the part *consenting*, until the other be in its rectitude, *sublatâ causâ tollitur effectus*. For example; if the *Head* complain from the *Stomach*, let the Cure be designed upon the *Stomach*, and that being performed, the work is done.

Thus you see plainly, that the Cure of *Head-pains* by consent, is as various and different, as the parts of the Body are different in organization, situation and office; whereby they become liable, and are seized with various diseases, requiring a different manner or methods of curing, which are to be treated of in their proper places.

Touch-

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Touching the Cure of *Head-pains* that are the products or consequents of *essential* or *idiopathical* Diseases seated in the Head ; the removing or taking away those pains depends upon the Cure of those Diseases, whereof they are the effects and concomitants ; and do require their due and regular course of means, suitable to the nature of the disease : but in cases of extremity, and for mitigation of pain, and the inconveniences arising thence, as long watching or want of rest, and prostration of strength ; there are such good Remedies, as *Anodynes*, prudently to be used for allay and giving ease or respite, until the causes can be eradicated, and a perfect Cure wrought.

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AMongst the several divisions of mans *Body* into parts, we may observe three insignal *Cavities*, each containing principal Members of the Body : the first and supreme is the *Head*, and all contained therein : the middle cavity is the *Breast*, which contains the *Lungs* and *Heart* : the lower region called the *Abdomen* or *Belly*, comprehends the *Stomach*, *Liver*, *Spleen*, *Guts*, *Kidneys*, &c.

And having taken cognizance of those pains incident to the *Head* ; we now come to remark what pains happen to the containing and contained

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tained parts of the *Breast*. Hence we may note, that these pains from their situation and place, may be distinguished into external and internal.

External *pains* we may call such as are outward amongst the musculous and fleshy parts, as the *Paps*, *Dugs* and intercostal *Muscles*.

Internal pains are such as seize the *Heart*, *Lungs*, *Mediastinum*, &c. parts contained.

The *Breast* is circumscribed thus; the upper part is from the two *Canal-bones* called *Claviculae*, about the bottom of the Neck; the lower part is bounded by the *Diaphragma* or *Mi-driff* spread just above the *Stomach* and *Liver* from side to side: the fore-part is the *Sternon* or Breast-bone seated in the middle, which joins and fastens the *Ribs*: on the back-part is the *Vertebrae* or *Spine*, consisting of many bones knit together, where also the *Ribs* have their articulation: the sides are compassed with *Ribs* swelling outwards, and they reach from the *Spine* to the *Sternon*. And this is the extent or limits of the *Breast*.

Pain may fall into the *Paps* or *Dugs* of both Sexes, but most commonly it happens so to women (except from external causes, blows or falls) and thus it is upon a sixfold account.

First, Because those parts are more capacious and swelling outwards in Women, which being *glandulous*, spongy, soft and porous, are thereby apt to imbibe or receive any vagrant humor coming to this part.

Secondly,

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Secondly, More liable to the impressions of cold, from its tender soft nature, and being by them more frequently exposed to the air; which may occasion and lay a foundation for pain and other Symptoms to follow.

Thirdly, In Women these parts being furnished with more Vessels of use for lactation or suckling, are thereby more liable and obnoxious to disorder.

Fourthly, From the communication and intercourse between this part and the *Womb*, whose diseases and distempers may affect the other by consent.

Fifthly, From the attraction of suckling, ill humors may be drawn and gathered there, which otherwise would not resort to that part.

Sixthly, Pain seizeth this part in Women from the various conditions of their milk.

Now the variations of milk causing this effect arise upon a double account: *redundance* or plenitude, and *Cacochymy* or alienation. Sometimes by plenitude; for milk abounding and distending the Vessels causeth pain and trouble in the part. Sometimes by *alienation* of milk from its natural good condition to a degenerate state: and this proceedeth from a *cachectic* or vicious habit of body; for as the blood is good or bad, so likewise the milk, which is *sanguis dealbatus*, blood changed white by another digestion.

This milky substance being *balsamic*, dulcid and pure in its integrity; yet is very subject to alterations and change from distempers and va-

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rious dispositions of the Body : as sometimes from thence , being not so sweet ; but *saltish, bitter, acrid* and *punging* ; sometimes curdling and coagulating , thereby not flowing freely in the Vessels, but causing obstructions in those small ductures: hence arise *pains, inflammations, hardness, tumors, &c.* if not prevented by a due course with good means.

And such inconveniencies as these are frequent to Women after the birth of children, when *milk* flows plentifully into those parts; and this many times or for the most part does proceed from the imprudent custom of managing Women in child-bed, especially some *Nurses*, who would be thought more careful, kind and diligent to their Mistresses; do feed them too plentifully, giving them Caudle at every turn, or after every short sleep night and day; telling them they are empty and must fill up again and make up their loss: which after this manner being done too hastily, and the body changing from a large evacuation to a sudden repletion; the *Stomach* thereby fails and is clogged, the *blood* ferments into disorder, causing acute and dangerous Feavers, of which the milk participates, and thereby degenerates, endangering both the Mother and the infant.

But indeed by experience I have found, and reason urgeth the same, that nothing is more safe than a spare diet, which preserves the *Stomach* quick and sharp, and keeps the whole body in a moderate temper and a regular condition, not
occasio-

occasioning such overflowings of milk, or otherwise *flowing* : and this I have cautioned and made some *Nurses* sensible of, who by observance thereof afterwards, found their offices more successful, and have given me thanks for my advice, as being the safest and best way to discharge the trust and care reposed in them.

In the next place we are to take notice of pains that are seated in the *musculous* parts, namely the *intercostal* Muscles, in number 44 ; so called from *Costæ* the Ribs, which these Muscles do cover, and also are inserted, filling up the spaces between each Rib. In these parts pains sometimes do fix and settle, and are most perceived upon drawing in of the breath, when the Muscles are upon extension and swelling outward. These pains are called by some *Bastard Pleurifies*, though improperly and by mistake ; for pains of the *Pleura* are different. Sometimes these pains are not of continuance as to time ; nor constant as to place, but move here and there ; and these are commonly called *Stitches*.

Pains are incident to these *Muscles* from external injuries, as *contusions*, and impressions of cold : or else internal causes ; and these are, either by *defluxion* of humors that may flow in ; as most frequently from an abounding *serosity* being thin, sharp and extravasated, falls in amongst these Muscles : or else, by *congestion* matter is accumulated, which Nature not being able to discharge, lyes there as a burden, impeding

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ding the muscular motions, and causeth *pain*. Sometimes from *flatulency* and wind, getting into the *Interstitia* of the Muscles, thereby causing intercurrent and fleeting pains.

And for remedy in such cases, Fomentations and hot Bags applied are advantageous; Evacuations being premitted, according to the condition of the Body requiring.

We come now to consider of *Pleurisies* or pains in the Pleura; that inward Membrane that does invest or line the Breast: a disease very eminent and frequently occurring, that both *Hippoc.* and *Galen* often mention it by way of example.

These *pains* are acute and sharp like punctures; and have no constant place, but in some persons they seize the right side, in others the left; in some the pain is higher, in others lower towards the *Hypochonders*; sometimes more backward, and sometimes forward: and although chiefly and more manifestly the pain be here or there, to be pointed at; yet the whole *Membrane* by reason of continuity, is thereby affected, and the parts adjacent do suffer by consent: from whence various Symptoms, as concomitants and attendants, do inseparably accompany and consort with this *pleuritic* pain.

Hence it is, that difficult and short breathing is constantly annexed to it; and this because the parts for respiration are hereby impeded, and have not their due motions and liberty of extension, but are restrained and curbed; which is done in favour, to avoid compressing the
grieved

grieved part, otherwise would exasperate and increase the pain: and therefore the sick fetch their breath short and quick, because they cannot take it fully and largely, and do repeat it the oftner by way of recompence.

To this (and by *consent* of parts) is adioyned a short and dry Cough, which irritates and provokes the pain by moving and straining those parts, and therefore is very troublesom and grievous to the Patient.

Here also a continual acute *Feaver* does necessarily follow as inseparable: for the *Archæus* or vital Principle being invaded in those parts by something hostile, does therefore insurge, becomes enraged, grows hot and fiery, raising a burning distemper throughout the body.

To these we may add another constant *Character*; namely a hard, swift, but small Pulse.

And these are the *pathognomonical* signals that are always attending upon, and do distinguish *Pleurisies* from other diseases of adjacency or affinity and likeness with them: for, when pains fall in amongst the *intercostal Muscles*, although there may be some punctures or prickings because of the Membranes there, yet not so great, the *Feaver* not so high, nor the breath so short, nor the *Cough* so troublesom, if any.

If the *Lungs* be inflamed only, the pain is but little; not punging, but obtuse; not in the circumference or sides, but in the *cavity* or middle of the Breast: yet the difficulty of breathing is greater here than in *Pleurisies*, from angust-

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ness that seizeth the parts of respiration.

Pleurisies differ from *Inflammations* of the Diaphragma ; because in this there is no pain in the sides , but only at the end of the short Ribs , and the upper part of the Belly is extended ; and with it a *Delirium*.

Pleurisies also are distinguished from *Inflammations* of the *Liver* ; in the seat or place of pain, which always is in the right side, under the short Ribs ; the pain not punging , but heavy and obtuse ; the Cough less, difficulty of breathing less ; but the Urine higher-coloured , or tinged red.

And now I see the reason (though very weak) why some Authors have distinguished *Pleurisies* or differenced them into legitimate and spurious , which indeed is a division of *Pleurisies* into *Pleurisies* and no *Pleurisies* ; for I account no disease to challenge that denomination, but such as have their foundation in the Pleura : else by the same reason all diseases may admit of the same distinction of legitimate and spurious ; for as much as every disease hath some Symptom which is common to other diseases that may give them some resemblance or affinity with each other , or be affected by consent from another : but I pass it over and come to examine the causes from whence *pleuritic* pains do arise.

These causes are *external*, and *internal*.

External causes are such as remotely prepare and dispose the body to a likely capacity of reception or aptness to this disease , laying the founda-

foundation for *internal* causes; and they do arise out of, or from the irregular, unfit or improper use of the *Dietetics*, which leads to a morbid or unsound state.

For example: violent *exercise* or otherwise, raising great heat in the Body and opening the Pores; by neglect upon it, as not to preserve that warmth for some time, and suffering it gradually to abate and go off, by keeping on cloaths and forbearing cool drinks; this may introduce a *Pleurisie*. So likewise in the heat of Summer to throw off cloaths, and be exposed to the wind at a Casement, or the cool Air in the evening. To over-heat the Body with strong Liquors, and suddenly endeavor to cool it again with small *Beer*, may effect the like. Cold Northwinds after Southerly, and hot weather, does alter the texture of the blood, and is previous to *pleuritic* or similar pains.

But here you must take notice and know, that *quicquid recipitur, recipitur per modum recipientis*; all Bodies are not alike nor equally disposed for reception; for in some these causes produce *Pleurisies*, in others *Angina's*, in some *Dysenteries*, in others *Arthritic* pains, &c. According to the aptitude and disposition of Bodies in fabrication or organization, and peculiar properties, have the same general external causes various and divers effects; being determined and specified by different states of Body, more liable and apt to this or that disease, rather than another. Hence it is that *external* causes, as

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Dietetic errors, have *heterogeneous* effects, and procure dissimilar diseases, according to various constitutions, purity and impurity, stability or debility, concurring with or resisting their influence: which consideration brings me directly to the next stage; being the latter part of the preceding division.

Internal causes, are *antecedent* or *conjunct*.

Antecedent; as *plethora*, being fulness of blood: or *Cacochymy*, a depraved or degenerate blood: both which are previous states or conditions of Body, disposing or rendring more liable to this disease: for, the great Vessels being full and distended, upon any *Effervescence* and *Superfermentation* of the blood, this impetuously like a torrent is impelled into the smaller Pipes, as those of the *Pleura*, where not having a free passage, it does cause pain by distension and *Inflammation*. Now this plenitude is brought on, or aggravated and increased, sometimes by a suppression of some accustomed Evacuation; as those that are wont to discharge and abate blood by the *Nose*, by the *Hæmorrhoids* or *Menstrual* purgations: sometimes by plentiful feeding, and too much ease; so that evacuation and transpiration, is not proportionable in abatement and to balance the imported food.

Conjunct causes are such as more immediately and nearly concur or conspire actually in forming of these *pleuritic* pains: and they are either *acidity*, or *viscidty* within the Vessels of the *Pleura*; or a violent *fluxion* from the larger

ger Vessels, too great for the capacity and reception of these exiguous canals.

2. *Acidity* or an acrid *serosity* does sometimes fabricate and finish this disease by punging and lancinating the *Pleura*; (for *omne acidum extra stomachum corpori est hostile*, says *Helmont*) thereby irritating and exciting the vital spirit to estuate and be incensed; and from this *focus* a febrile heat is kindled and communicated to the whole Body: and that oftentimes and for the most part, it is a sharp serous humor predominant in the blood which caused this disturbance in the *Pleura*, is confirmed by the manner of solution or termination of the disease, which most frequently is by a *sudorific* evacuation, or *insensible* transpiration: and therefore *Hippoc.* in his Predictions says; *Sudores & urinas in Pleuritide probè fieri bonum esse & salutare*, Friendly Sweats and effusion of Urine presageth a good event.

2. *Visciditv*, or *grumosity* of the blood does sometimes cause *pleuritic* pains; for by obstructing those small ductures of the *Pleura* and stopping the Circulation, a *Tumor* thereby is raised within this double Membrane; for the Veins, Arteries and Nerves lye between these two Coats of the *Pleura*.

And that the blood is thus apt to be *stagnant* (especially in the smaller Vessels) by coagulation, grossness, or congelation, is confirmed by *Phlebotomy*; for being let out of the body, it is sometimes found destitute of its *Serum* or *Latex*,

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tex, that keeps it fluxile, thin and transient: and also is manifest so to be when it is in the Vessels; as in *Gangrenes*, where the blood is fixed and the part almost mortified: and when *Pleurisies* do happen upon this cause of concretion, they commonly tend to *suppuration*, as not capable of being dissolved, or put into motion for a discharge of the part.

Now the *Blood* becomes thus incrassated, gross and viscous, from every cause that does too much exhaust and expend the *serosity* thereof; as too great *transpiration* or sweating, or immoderate making of urine: and sometimes from a malignant, or a venemous *Miasm* that curdles or congelates the blood.

3. *Fluxion* or ebullient and preternatural Fermentation causeth *pleuritic* pains: and thus it happens when a *Pleurisie* is the consequent or appendent to a *Feaver* preceding: for sometimes a *Pleurisie* does precede and is the cause of a *Feaver*; as when the dart is felt to strike the *Pleura* before any febrile distemper appears: sometimes a *Pleurisie* does supervene and follow a *Feaver* as an effect from that general ebullition, the hot spumous blood rushing into the *Pleura*.

Having established these causes in their due Series, presenting them in the method and order of their causation and action; we shall not trouble our selves with *Choler*, *Flegm* and *Melancholy*, the supposed materials of every disease; nor shall I controvert the insufficiency of that doctrine here.

For

For Indications of Cure, prompting what is to be done, which way, and with what; they are various as the case presents.

1. *Plethory* indicates *Phlebotomy*, and requires a depletion or abatement of the redundancy of blood; that there may be room for the peccant matter to retire, and for a revulsion and derivation thereof; as also to avert the current and flux tending towards the pained part.

2. *Purgation* (by sedate and amicable *Cathartics*, if you can procure such; else by Clysters the best substitutes in that defect) is necessary to absterse and cleanse the whole Body, thereby subducting fuel from the fire, and for rendring the Patient not so liable to *effervescency* and turgid estuation, and for a retraction from the part affected.

3. *Topical Discussives* are available and contribute to the remove of the morbidic cause; both as defensatives, giving *robor* to the grieved part for resistance of the humors flowing in; and also for a transmission and discharge of the conjunct matter residing.

4. *Diaphoretics* to rarifie, dissipate and set open the Pores, for a free transpiration and exudation, are not only safe, but exceeding necessary; thereby to avert the *antecedent* cause resorting to the pained place, and to disperse and scatter the morbidic *conjunct* cause from the part affected; if possible to prevent *suppuration*, which is very dangerous and commonly mortal.

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5. *Anacathartics*, or proper and truly expectorating Medicines are auxiliary and profitable in promoting expectation, by digesting the peccant matter, and rendring it more apt and easie to be brought up: and of these some are attenuating, others incrassating; to be used *pro re nata* suitable to the offending cause; which if it yields soon and freely, and Nature throws it up by cough and spitting, it portends good, promising shortness of the disease, and a prosperous event: which *Hippoc. 1. Aphor. 12.* confirms.

6. *Anodynes*, elected by a discerning Judgment, and cautiously used, may be of good advantage in some cases, and at some times, else may prove very pernicious.

Having dispatched these *pleuritic* pains, we are next to take notice what other pains are incident to the *Thorax* or Breast. And here we find pain to arise from *Inflammations* of the *Lungs*, of the *Mediastinum*, and of the *Diaphragma*: whereof an account will be given in their proper places hereafter, when we treat of Inflammations.

But the *Lungs* do suffer pain also from other causes, as from *Tumors* not inflamed; sometimes from *adhesion* or sticking of the Lungs to the sides of the Breast: sometimes from *stones* and *worms* that have bred there, observed and found upon Dissections: and sometimes by *Erosions* and *Ulcers*, of which in their due place following.

Back-pains of the *Thorax*, are either upon the *spine*, between the shoulders: or upon the *scapula*, the shoulder blades. And these pains do arise from some impressions of *cold* lately taken, or from defluxion of a *serous* humor from the Head; or sometimes from a malignant *Miasm* Venereal or Scorbatic, that infects those parts.

Pain sometimes is seated at the bottom of the *Sternum*, between the short Ribs, under the Cartilage *mucronata*; vulgarly called the Pit of the Stomach, but improperly. This *Cartilage* hangs down, being as it were a defensive to the subjacent parts, namely the Stomach and Liver; yet is flexible to give way to the extensions of the stomach without compression. This place is very tender at all times, insomuch that a blow here is ready to make a strong man faint: the part being thus sensible, pain therefore here must be very troublesome. Now this place is of acute sense or feeling, in regard the upper Orifice of the *Stomach* (being very nervous) and almost subjacent to this *Cartilage*, and the *Heart* adjacent; hence it is that a blow or pressure here, raiseth a fainting pain, the *Cartilage* yielding and giving way to any force.

But sometimes a *pain* is planted here, not always by any external manifest cause, but from internal, and preternatural state of the parts: and this pain is rarely taken notice of by *Physicians*, and mentioned but by a few practical Authors. Now to examine into the cause of pain, you must know that this Cartilage is flexible and
yielding

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yielding in its natural condition, being of a middle nature between a Bone and a Ligament, and therefore may be curvated and bent inward upon a threefold account.

By *Laxation*, *Exsiccation*, and external *depression*.

1. By *Laxation*, as when too much moisture resides here mollifying and loosning the part; from any small occasion the Cartilage may be inflexed and turned inward, changing its due position and rectitude: and from the like cause *Ligaments* are sometimes relaxed, which renders *Junctures* ready and apt for dislocation and disjuncture; and upon this score the *Vertebræ* of the Spine have been displaced; also the Hip and Ancles.

2. By *Exsiccation* this Cartilage may be distorted and wrested from its posture: as sometimes that which was straight, green and pliable, by drying and shrinking becomes crooked, bent and drawn aside: So this Cartilage that was a Grille, tender and pliable, sometimes becomes dry, hard and bony, and fixed upon distortion or writhing, as not returning to its rectitude or straightness, and distance from the subjacent parts, over which and for whose guard it is placed.

3. By external *Depression*, as from a blow or fall, any thing too much or too long pressing upon that part, may pervert and alter the situation and due posture: and those whose business or imploy keeps them bending or pressing forward
too

too much and constant, renders them liable to this inconvenience; and therefore Students and Clerks that write much pressing upon this part are injured thereby, and find it upon age, though youth bears it off for a time.

Now since this *Cartilage* is thus exposed to depression and bending inward, and thereby the tender parts subjacent to be pressed upon and molested; the cause of pain and manner how is made evident: and which most commonly is felt after eating and upon a full stomach, when the parts are dilated and swelling up to this *Cartilage*. And farther, as all parts of the Body in several persons do vary and differ much in *figure, position, magnitude and distance*; so thereby some are more liable and apt for this pain than others, although subject to the same external procuring, or internal antecedent causes.

And so I dismiss this particular pain and pressure, and must take cognizance briefly of that which is more general upon the whole Breast.

The *Thorax* or Breast suffers by *compression* or *constriction*, whereby a general obtuse pain of *angustness* is perceived, and that chiefly upon inspiration and drawing in of the breath: and why now more than at another time, is because the inspired air fills and distends the Breast, which makes opposition to, or resists the compressing causes.

Now the cause of *angustness* or coarctation is from the *Genus nervosum* that gives motion
to

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to the Muscles and other parts of the Breast; which Nerves sometimes are impeded and contracted, that their functions are not freely executed: and therefore to this Symptom of compression is commonly adjoyned shortness or difficulty of breathing, upon the same score; and sometimes *Spasms* or convulsive motions. And this complaint of straitness or contraction of the Breast does frequently happen to *scorbutic* persons, whose *nervous* juyce being degenerate and tainted, their Organ or Vessels perform not their office duly as they ought, in giving the full motion and extension of every part: for, this nervous liquor being fed and supplied from the mass of blood which is *scorbutic*, feculent and depauperated in spirit, that also which is extracted thence must be answerable, and of a degenerate nature: so then this *nervous* juyce which should be vegete, noble and spirituous, for putting the motive faculties into action with vigor and briskness, is become *dispirited*, flat and depraved, and the Organs acted thereby, move heavily and irregularly: so that upon inspiration or filling the Breast with Air, the parts do not readily give way by expansion to let in; hence the Patient feels himself girt or strait-laced.

It remains now in the last place, that we finish this second division, in examining and searching into the nature and causes of those pains that more peculiarly and eminently afflict the Heart.

The *Heart* being a noble (or the noblest and princi-

principal part, is as the Sun of the *Microcosm*, whose irradiating lustre and beams of vital heat, enlivens and refresheth all the regions and parts thereof: the Eclipses, storms and clouds then that happen as the consequents of its distempers and sufferings, must needs be eminent and remarkable. This supreme Organ that bears the government of vitality, is so generally concerned in all diseases and discomposures of the Body, that few there are but the *Heart* is made sensible thereby, and gives notice thereof by variation of the Pulse, as a signal from thence. And not only distempers of the Body, or the defect and decay of some particular member or faculty does affect the *Heart*; but also the disorders and passions of the *Mind*, have influence thereon, that from thence the *Heart* akes, beats, or suffers pain and restless disturbance: hence it is that *grief, anger, fear, desire, &c.* changeth the regular motion of the *Heart*, and the Pulse alters as a token and manifest character of its sufferings.

Now the *Heart* is made thus sensible of the Bodies infirmities and preternatural mutations, from the vital government that is planted here; having commerce and communication with every member, from the circulating *afflux* and *reflux* of the crimson vital stream, continually transmitted through this Organ, which thereby is affected well or ill, as the *blood* is better or worse, in the current and quality thereof. And the *Heart* is also affected from the mind; for as

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much

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much as the Soul exerciseth her power more eminently here ; and if a particular part may be assigned , this may be said to be the seat or Throne of Regality.

The *Heart* being of a solid fibrous flesh , the *pain* thereof is obtuse ; not so accurately perceptible, so acute and sharp, as those of the nervous parts : notwithstanding the effects and consequents thereof are impressed upon the whole Body, and each member is impaired in its vivacity and vigor : and although this *Heart-pain* by the nature and substance of the Organ , is not so great commonly and perceptible , as that of some other parts ; yet when this pain does arise to some degree , a *Syncope* seizeth the Patient , a deprivation or cessation of life for a time ; that what it wants as to sense is doubled in the consequents, as threatening and endangering the life : so that extremity of pain is not perceived here, because sense decays, as the cause of pain increaseth.

The *Heart* is molested and suffers pain these several ways : by *extension* , *constriction* , *obstruction* , *inflammation* or intemperate *heat*, *Imposthumation*, by *erosion*, by *exotic* generation.

I. The *Heart* is pained by *extension*, from a sudden ebullition and turgid fermentation of the *blood* raised by passion, or otherwise ; whereby the Vessels are suddenly forced upon *distension* to receive and transmit the inundation and swelling current of the blood ; and from hence pain
and

and trouble ariseth at the Heart.

2. By *constriction* the Heart is pained, and that from *external* and *internal* causes: externally from the *Pericardium* compressing, whereby the Heart is denied the full liberty of its *Diastole* or expansion: and this may arise upon a double account; either from the *Pericardium* being too replete and full; or too much *exhausted* and empty. You must understand therefore that this *Pericardium* or *Capsula cordis*, is a Membrane designed by Nature to involve and inclose the Heart for its defence; as also being a moist Bath to irrigate and keep it souple, containing a *Serum* or water; and this Membrane should extend and be enlarged according to the motions of the *Heart* being greater or less: now when this water does abound, filling the cavity of this inclosure, the Heart thereby is prohibited its full expansion: and *è contrà*, when this water is too much wasted and dried up, the *Pericardium* cleaves to the *Heart*, and impedes its pulsific motion: thus either plenitude or vacuity begets anxiety and trouble at the Heart.

Internal cause of *constriction* is, when the Heart it self is seized with a *Tubes* or vehement desiccation, and the fibres so contracted, that it hath no capacity, or less for dilatation, and permission of the transient blood.

3. *Obstruction* causeth *pain* and trouble at Heart, when the free current of the blood is impeded from within the Vessels; and this is produced sometimes from a perturbation of the mo-

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vent spirits, and sometimes from an indisposition of the impulsed blood.

First, from a sudden and violent recurrence of *Spirits* from other parts, and tumultuous confluence at the Heart, whereby the circulation is checkt, and the blood stopt in the *Ventricles*, causing a suffocation for a time; and this happens upon vehement passions, and consternations of the mind.

Secondly, From an inability and incapacity of the blood, being *gross, concreted* or *grumous*, that it hardly or with difficulty passeth through this Organ, causing thereby an obtuse pain, oppression or heaviness at the region of the Heart, and sometimes a *Lipothymy* or *Syncope*, fainting or swooning.

4. By *Inflammation* or intemperate heat, the Heart is pained; as in most *Feavers* where intenseness of heat is accompanied: and this heat continuing does exsiccate, and contract the heart, and brings a *Tabes* or Consumption upon the whole Body.

5. By *Imposthumation* the Heart is pained sometimes, as also by other *Tumors* there bred, which by dissection hath appeared after death.

6. By *Erosion* or *Ulceration* sometimes the Heart is pained, and suffers by continual palpitation.

7. By *exotic Generation*, and strange productions the Heart sometimes is pained; as when *worms, stones* or *bony* substance is bred in the *Parenchyma* of the Heart; which hath been found

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and there upon dissection after death : and these diseases , and such as most of the fore-mentioned, the Symptom of *Palpitation* does necessarily belong ; shewing the continual molestation and trouble the Heart lyes under , who endeavors to acquit and extricate it self by laborious, lofty and strong pulsations.

Pains in the Abdomen or lower Region of the Body.

NOW we have done with those pains incident to the middle Cavity , namely the *Thorax* or Breast : I come in the next place, and by the order proposed to the lower Region, called the *Abdomen* or Belly, containing the *Stomach, Liver, Spleen, Kidneys, &c.*

And here first as the principal member we shall inquire into pains belonging to the *Stomach* or Ventricle ; being the great Office and Laboratory to prepare Aliment to supply and maintain the whole Body ; therefore if this part be pained and out of order, all the rest must needs fare the worse for it, every part having a concern from hence.

Pains of the Stomach are various both in respect of their causes ; and also from the different parts of the Ventricle where they do infest, and those are three ; the upper Orifice called *O,*

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Ventriculi ; the lower *Orifice* called *Pylorus* ; and the whole cavity of the Stomach.

The upper *Orifice* or mouth of the Stomach is subject to great pain, as being very tender and sensible , in regard it is very nervous , and this *pain* is the more eminent and remarkable , for that commonly two principal parts are hereby affected and drawn into consent , the *Brain* and the *Heart* : the former , by the Nerves of the sixth conjugation derived from the *Brain*, whose ramifications are wreathing or twining about this *Orifice* ; and therefore from hence *Head-aches*, *Vertigoes* and *Epilepsies* do often arise. The *Heart* also is affected , both in respect of *vicinity* as near adjoyning to this *Orifice* ; and also for that the same pair of Nerves doth serve both the *Heart* and *Stomach* , whereby of necessity there must be a communication of pain ; and therefore it is that this *pain* in extremity causeth *Fainting* and *Swooning* : and hence it is that this pain by a peculiar distinguishing title is called *Cardialgia* ; and also for that the ancient Greeks called the mouth of the stomach *gastrica*.

As for the causes of this *Cardialgia* or stomach-pain ; sometimes they are sharp, acrid and hot biting humors , fluctuating and rising up to the *Orifice* of the stomach, where they cause an eroding or gnawing pain, and sometimes a scalding or heat there ; and this vulgarly is called the *Heart-burning*.

Sometimes *flatulency* and wind causeth this *pain* by way of distension and a swelling fulness ; and

and the Orifice is constringed and shut up so, as
any vent : in this case the Patient labours
and strains to belch, but cannot unlock or loosen
the Orifice of the stomach ; but so soon as the
Orifice does slacken and give way , the wind
breaks forth, and ease followeth.

Sometimes *Worms* do cause this pain, having
gotten up to the mouth of the *Ventricle*, where
they gnaw and bite.

Sometimes churlish and deleterious or ill pre-
pared *Physick* ; or discordant *food* having such
properties as may irritate and provoke this ten-
der part : or food received in too great a quan-
tity, above what the stomach is able to master
and digest, then it riseth up to the mouth of the
stomach, causing oppression and pain there, un-
less it be discharged upwards or downwards, by
the strength of Nature , or the assistance of
Art.

Besides this *Cardialgia*, there is also another
sort of pain that afflicts the mouth of the sto-
mach, and that is *Singultus* a Hicket or Hickop :
and although the whole Ventricle be molested
therewith, yet the chief pain or trouble is at the
Orifice or mouth of the stomach. This *Hickop*
is a convulsive motion of the stomach , thereby
causing pain. The general causes assigned by
Hippocrates are two, *repletion* and *inanition* :
under repletion is comprehended whatever hu-
mor or vapor is in the stomach and *disgustful*,
to irritate and provoke the expulsive faculty :
but a *Singultus* by inanition, is a vellication of

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of the retentive faculty, and is the effect of exhaustion and large evacuations: and accounted more dangerous than the former. Therefore *Hicups* after great vomiting or purging, *Hætick Feavers*, and long-wasting sicknesses, are very bad signs.

There is also a *pain* belonging to the mouth of the stomach, which although it be a real pain and properly so called (according to the definition of *dolor*) yet Physicians have given it another denomination, and that is Nauseousness, or a nauseating sick pain at the *Orifice* of the stomach. The causes of this nauseating pain are various: as whatever is disgustful there, whether it be meat or drink offending in quantity or quality: or indigested depraved matter, the relicts after former digestions, floating upon the stomach: or only imbecillity and weakness of the stomach, being not able to close with and digest, although good food be sent in: and thus it is when the *Tone* of the stomach is altered by *intemperance* and ill usage; by great or long *sickness*; or decayed and worn out by *age*. Sometimes the cause is organical, as when a *Tumor* or *Apostem* is forming there.

And not only thus *idiopathically*, but also sometimes the stomach complains and nauseates *sympathically*, by consent from other parts, by reason of vicinity or communication: and thus a *Tumor* of an adjacent part may molest and afflict the stomach: and other remote parts discharging and emptying themselves into the stomach

mach by Vessels of intercourse, *Veins, Arteries,* and *Nerves*.

In the cavity of the stomach, there is sometimes a pain of *oppression* or *heaviness*, being over-charged or loaded and grieved with something difficult to be digested and sent off: or a pain of *distension* and *inflation*, from wind and phlegmatic turgid humors: or a *punging* and pricking pain in this or that part of the Ventricle, from some *acetous*, sharp humor: or an *eroding* and gnawing pain, from worms, or a *mordicant* fretting bilious matter.

Pain of the stomach ariseth sometimes from *Inflammation*, accompanied with very severe Symptoms; but of this in its proper place hereafter, where we treat of *Inflammations*.

Pain also afflicts the stomach from *Apostems* and *Ulcers*, of which in their due place also.

Pains of the Intestines or Guts.

HAVING gone through those *Pains* belonging to the *Stomach* or *Ventricle*, in the next place and in order, we come to treat of pains incident to the *Intestines* or Guts; being derived from the Ventricle, and are one continued body and passage from the *Pylorus* to the *Anus*: notwithstanding for distinction sake, and because this long cavity is different in several parts thereof, as to *magnitude, substance, figure,*
place

place and *office* ; therefore it is divided into parts, having several names , for a more distinct knowledge, both in relation to the different formation thereof , as also to point particularly where a disease is in any part thereof.

The division is made into *small* and *great* Guts ; the small or thin are three ; *Duodenum*, *jejunum* and *Ileon* ; the great or thick are three also, *cæcum*, *Colon* and *rectum* ; and in this order they lye from the Ventricle to the Fundament. The three first are circumvolved about the *Umbilicus* or Navel, and take up the centre of the *Abdomen* , the other are subjacent and circumferential.

Pains do frequently molest the small Guts, but chiefly the *Ileon* ; which when they arise to extremity , the disease is called *Iliaca passio*, from that Gut most affected.

The seat of these *pains* are above the Navel chiefly, extending to the *Hypochonders*.

These *pains* differ in their causes, and therefore some are weak and transient , arising from *wind* and *acidities* , which cause some punctures, gripes, or distensions, and continue not : but sometimes these pains are more grievous, depending upon causes greater and more contumacious ; and therefore attended with other Symptoms in great rigor : as *constipation* of the Belly, violent *heat*, *fainting*, *vomiting* and casting up whatever is received ; nothing passing downwards, but moves upwards, that sometimes the excrements are voided by the mouth.

About

About the causes of these violent pains *Physicians* do not concur. The general opinion (taken from *Galen*) will have these pains to arise from an *Inflammation* of the Guts: others (modern Authors) from a *peristaltic* motion, or the motion of the Guts inverted: for whereas in the course of Nature the expulsive faculty moves downward by a contraction of *Fibres* from the Ventricle to the *Anus*; *è contrà*, in this case the *Fibres* contract below and drive upwards.

But this difference may be reconciled, and neither opinion to be faulted, being rightly understood: for *Inflammation* may begin, and cause the motion of the *Intestines* which naturally tends or moves downwards, to be changed upwards, by a different contraction of *Fibres*: So that *Inflammation* causeth mediately, *peristaltic* motion immediately; and sets forth the order of causation; the one superior, the other subordinate. *Quod est causa causæ, est etiam causa causati.*

All the Guts are capable of *Inflammation*; but the small Guts more usually, as being most liable, for having more *Veins* and *Arteries* than the rest.

These *Iliac* pains from *Inflammation* are very dangerous, if they arise to a great height; because the *Inflammation* is apt to make a mortal transition into a *Gangrene*: and indeed all *Inflammations* of the Guts are difficult and doubtful, because they easily gangrene and mortify.

And

And not only *Inflammation* inverts the motion of the Guts, but also other causes may beget this *Iliac* passion, or joyn with it as partial causes: as an *Apostem* or other sort of Tumor; a *Rupture*, an *Exulceration*, indurated *Excrements* causing great obstruction: also whatever by compression or constriction of the Guts, constipation or coalescence, may cause contorsion, and turn the natural course and motion thereof: and of these frequent examples in practice do manifest and confirm.

Pains of affinity and adjacency to the *Ileon*, and which are often complicated therewith, are *Colic* pains, so called from the Gut *Colon*, the part wholly or chiefly affected. This Intestine is last but one, and more capacious than any of the rest; furnished with many little cells or private receptacles, to receive the excrements and retain them, else they would pass away too frequently and inconveniently.

This *Gut* is seated almost round the *Abdomen* or Belly; so that *Colic* pains are not easily distinguished by the place, being sometimes here and sometimes there; left side, right side, or under the Ventricle; hence it is that *Colic* pains do counterfeit sometimes the *stone* or pain in the *Kidneys*, left and right, and sometimes they are supposed to be pains of the *Spleen*: but most frequently these pains are towards the left side near the flank, where the *Colon* is more angust, tortuous and circumflected: and therefore when the excrements are hardened in the superior

rior and more capacious part of the *Colon*, and are then forced down by *wind* or otherwise, into the narrower, great *pain* must needs arise thereupon.

But concerning the causes of *Colic*-pains they are various, and may be ranked under these Heads.

1. *Obstruction* of the *Meatus felleus*.
2. *Wind* and flatulent *Vapors*.
3. *Acrid*, punging and sharp *Humors*.
4. Indurated *Excrements*.
5. *Stones* generated in the *Colon*.
6. *Worms*.
7. *Compression*.
8. *Inflammation*.
9. *Venenous* and malignant Matter.
10. *Apostems* and other *Tumors*.

By the first it appears, that *Obstruction* in the Guts (which produceth *Colic* pains) does sometimes arise from an antecedent obstruction in another part: as when the *Meatus cysticus*, the passage of the Gall into the *jejunum* is stopt, it causeth also a stoppage in the Guts: for the *Gall* being naturally discharged into the *Guts* does stimulate them to expulsion, and moves the excrements downwards; but for want of this exciting and provoking matter, the Guts fill up, are obstructed and distended, thereby raising *pain*.

Wind and flatulency begets *Colic*-pains sometimes; and these are not fixed, but roving here and

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and there ; and commonly attended with a rumbling and noise in the belly : and this is an effect of *crudities* and weak *digestion*, rising from a natural debility, or occasioned by intemperance and a bad diet. And this *status* is either in the cavity of the *Colon* involved in a viscous tough flegm inclosed as in a Bladder ; or sometimes shut up within the *Tunics* of the *Intestine*, where forcing its way out, does cause great *pain* in the part.

Sharpness of an humor indigested or degenerate, does sometimes cause *Colic* pains ; and this is either a *mordant* biting *Choler*, or an acid *serosity*.

Driness and *hardness* of Excrements do cause *Colic*-pains sometimes ; for as much as they stop the passage and extend the *Intestines*, denying vent to any sudden fermenting *humor*, *wind*, &c. that should freely pass away. This costiveness and constipation is acquired, by ill diet, in the use of hot, dry, astringents : by *watching* or *sleeping* too much ; immoderate *Venus* ; by *beating* the body, and *sweating* much, through *exercise*, *labour*, intemperate *Air*, &c. These are great dryers, and take off the *lubricity* of the *Guts*, that they perform not their office as they ought : thus excrements not being transmitted and sent away duly, they accumulate, fill up, distend and obstruct the *Intestines*, and give great occasion to *Colic*-pains.

Stones sometimes are generated in the *Colon*, and do cause *Colic* pains : also a clot of *worms* gather-

gathered and twisted together, obstructing the Guts, have raised *Colic* pains.

Compression and contraction, by *Inflammations* and *Tumors*, in the Guts or parts adjacent, do sometimes cause *Colic* pains.

Also *malignant* and venenate matter hath procured the like; as *Paulus Aegineta* relates of a pestilential *Colic* that arose in *Italy*, and afflicted many of the Roman Provinces.

Fluxes of the Belly.

HAVING spoken something concerning pains of the Guts, *Iliac* and *Colic*, attended with *astriktion* of the Belly and costiveness: I shall briefly set forth those pains that are accompanied with a *Flux* or looseness.

There are three sorts of *Fluxes* of the Belly distinguished by several names; *Lientery*, *Diarrhæa*, and *Dysentery*.

The first is a *Flux* of indigested or semidigested food, passing away before its due time from an imbecillity of the digestive faculty. But this not being *dolorous* or painful, we shall pass it by, as not our subject in hand.

The *Diarrhæa* is a flux of humors depraved and injurious, which stimulates Nature to expulsion; and is for the most part *painful* and irksome to bear.

1. This kind of *Flux* is various in the matter of it.

2. Diffe-

2. Different in the *efficient* cause (as some are of opinion.)

3. Unlike in the *manner* and circumstances.

4. Various in respect of *place*; as issuing from several parts of the body.

Touching the diversity of *matter* in this flux, *Physicians* have distinguished it into *phlegmatic*, *choleric*, *melancholic* and *serous* or watry: which distinction is not simply manifest, but a complication and mixture of many sorts, whereof one may abound and be predominant; yet the denomination and character of the whole is hard to be given.

The variety of depraved matter that happens in mans body, is not to be reduced to four *Heads*, nor three times so many: for this stimulating matter thus sent forth by a *Flux*, is the manifold different material cause of *hundreds* of diseases: which preternatural variation of humors or juyces are not to be comprised within so narrow a compass, nor reducible to four *Cardinal* points: for admit there were four natural constituent humors in mans body (as common doctrine teacheth) yet these in their sundry *variations* and complicate *degenerations*, would be so variously changed, as not to retain any relict or smack of their *original* descent; that a denomination from thence, if possible to be distinctly given, would no way answer in the similitude or nature thereof, and consequently of no use in practice.

In respect of the *efficient* cause, *Authors* have distin-

distinguished these Fluxes into *critical* and *symptomatical*: by *critical* they understand, when Nature in due time, and with good success, throws off and expels any peccant matter, and finds relief by it in any case. A *symptomatical* Flux they mean, when Nature irritated untimely or immoderately, is not benefited thereby, but rather injured and endangered.

The *opinion* of this is true, and it often falls out thus; but the distinction of *critical* and *symptomatical*, relating to the efficient cause, and the reason thereof, I do not assent to nor comply with, since every Flux is *symptomatical*, whether it produce good or evil: for that which they call *Critical*, and is seasonable and duly performed with good effects attending, is but *symptoma morbi*, the Symptom of some disease, as well as the other: so that the difference is in the nature of the disease afflicting, the matter excreted or voided, the fortitude of Nature, the time where, the way by which it ought or ought not to pass, which does distinguish these Fluxes in their effects to be good or ill; but shews no diversity in *efficient causes*, which is one and the same: for Nature is *efficient*, whether irritated unseasonably and frustrated of her end; or performing these endeavors in due time and to good purpose.

But although the *efficient* cause of *Diarrhæa's* be simple and single, yet the *occasional* causes are many; for these *Fluxes* are occasioned sometimes by change of *air* or *place*, and variation

tion of the *seasons* ; by some kind of *meats* or *drinks*, taking *cold* or other casualties and accidents, which puts Nature upon some disorderly fermentation and excretion ; and this commotion occasions and stirs up any *morbific* matter and noxious humors, which before perhaps lay dormant and still, now to grow *turgid* and active, contributing to advance and promote the *Flux* begun : but this managed by a discreet hand may not prove injurious, but some advantage gained ; which if neglected, and Nature not governed and guided in this prodigal expence, much detriment may come thereby, an exhaustion of nutritious *Juyce*, with great debility and weakness.

As this Flux *Diarrhœa* is various in the matter discharged ; so likewise in the *manner* and circumstances : as greater and more *violent*, or moderate and gentle, making a profitable secretion : without *gripes* or *pains*, but for the most part with these more or less ; which by continuance and shaving the guts so thin, at last do come to the quick, and cause *excoriations* : and this difference ariseth from the nature and quality of the humors or stimulating cause, which sometimes is so extreme sharp, introducing a *Dysentery* or bloody Flux.

These *Fluxes* sometimes produce good effects, when the *peccant* matter of any disease, or an *exuberant* humor is timely and moderately discharged and sent off ; but otherwise not : and therefore saith *Hippoc. In turbationibus*
alvi

aloi & vomitibus sponte contingentibus, siquidem qualia purgari oportet, purgentur, confert & leniter ferunt; sin minus, vice versâ.

In respect of place, or parts *mandant*, from whence these Fluxes take their rise, and the *terminus à quo*; they proceed sometimes from morbid matter congregated and concentrated, issuing from the whole body: and of this take the example of *Hippoc.* giving a *Prognostic* in this case, 7. *Aphor.* 29. *Si Leucophlegmatidâ de-tento fortis Diarrhœa supervenerit, malum solvit.* Which is to be understood, in the beginning of the disease, strength firm, and the *Viscera* sound, else it is commonly mortal.

But sometimes also these *Diarrhœa's* do emerge from particular parts: as the *Ventricle*, *Brain*, *Spleen*, *Liver*, *Mesentery*, &c. and therefore in the Cure of these *Fluxes*, regard must be had to the part principally affected, from whence as the original and fountain these *Diarrhœa's* do assurge. And therefore examination is to be made by the *Diagnostic* signs of every principal part; discovering thereby which performs their offices in integrity, and which of them decline their functions, and are depraved, as being the *Authors* of this disturbance.

The third sort of *Flux* is a *Dysentery* or bloody Flux: which is a *dolorous* and frequent excretion of blood, from an *Exulceration* of the Guts.

There are several voidings of blood by stool,

that are to be distinguished and know from *Dysenteries*. *Galen* mentions four, others add two more.

The *first*, is a profusion of *blood* arising from *plenitude* or fulness of good blood; Nature over-burdened dischargeth her self this way by the *Guts*.

The *second*, is an evacuation of crude and watry *blood*, not having its full tincture.

The *third*, is of a feculent and foul blood.

The *fourth*, of an acrid and salt blood.

The *fifth*, is of a tabesied blood in acute diseases.

The *sixth* (which is *Galen's* fourth) is a *Dysentery*, distinguished from the rest, by Ulceration and great pain.

To examine this division in the several parts thereof, and to set forth what truth and error it contains therein, is not our business at this time: I shall only discourse upon the last; *viz.* a *Dysentery* being painful and grievous to bear; which kind of bloody Flux ariseth from, and is accompanied with an Exulceration, and commonly is the consequent of long, or severe *Diarrhæas*; for those *Fluxes* not being checkt, do sometimes make their transition and terminate in *Dysenteries*.

This word *Dysentery* taking its name from the part affected, imports only a difficulty of the *Intestines*; but may as properly be used for other diseases and pains there: but *Authors* having fixed it to bloody Fluxes from Exulceration;

ceration ; its general signification is restrained, and custom amongst *Physicians* hath fastned it here, as the *character* of this disease only.

The parts affected are the *Guts* , either the small or the great , and sometimes both : but pains of the small are more grievous than those of the great : the small *Guts* being of more exquisite sense.

The external and *procatartick* causes that pre-dispose and introduce a *dysenterical* disposition, or promote and set forwards an inclination already begun, are

First, the constitution of the *Air*.

Secondly , a bad *Diet* conspiring therewith, or some unwonted kind of *Meats* or *Drinks* : and therefore it is that many people upon the change of *Climate*, and a new sort of *Food* , do fall into bloody Fluxes: hence it is also , that these *Fluxes* are sometimes *epidemical* and malignant, infesting many together in a City or Country, as of late years in *London* , and some other parts of *England*, this disease was raging. These *epidemical Dysenteries* arise sometimes to the height of *pestilential*, and are very contagious, that it is not safe to converse with , or be near the diseased ; but especially such as attend upon the sick are in most danger, from the *Excrements* that send forth a pernicious and infectious vapor.

For the time of the year , *Autumn* is most ready, and does more frequently produce these Fluxes : partly from the change of the *season*,
H 3
and

and partly from the effects of Summer-fruits, to which many are intemperately given: the consequents whereof are commonly *Diarrhæa's* and *Dysenteries*.

Now the reason why these *Fluxes* do break out more frequently at this time of the year is; because the external ambient *Air* and cool blasts condensing and incrassating the *Juyces* of the body, as also occluding and shutting up the *Pores*, denying and hindring the former *Transpiration* (which in the Summer and hot weather did spend and evaporate that way much superfluous matter) which *vents* being stopt, humors accumulate, ferment and grow turgid, and forceth a discharge inwards by the *Guts*.

And not only this change of *Air* from hot to cold, or Summer-fruits are procuring causes; but also some *astral* and inimical influences, drawn in with our breath, may deprave and alter the *Crafsis* of the *blood* and nervous *juyce*, as to effect this disease, and make it popular in like manner as other *Epidemical* diseases are sometimes procured. Also some sorts of Meats in *quantity* or *quality* offending and disagreeing, and for want of good digestion, may corrupt and dispose to these *Fluxes*. To these we may add as procurers, some ill prepared *Medicines*, and medicinal Drugs not well corrected that have, and will produce a *Dysentery*.

But concerning the proximate cause and manner of generation of this disease, we must farther declare: And whereas before we mentioned

ed several sorts of *bloody* excretions or fluxes not *dolorous*, nor depending upon or conjoyned with exulceration of the *Intestines*, and therefore not denominated nor to be understood as *Dysenteries* in the strict and present sense; therefore I must wave the mentioning of their causes, and only give an account of *Dysenteries* in the usual acceptation of the word.

In the forming or generating of this *Dysentery* you must understand, that sometimes the *Ulceration* is planted first and hath the priority, and a Flux of blood follows as the consequent: but sometimes the voiding of blood precedes, and an *Ulcer* or *Ulcers* is procured thereby as the *effect*: and this consideration is not of small moment in the designment and intentions of curing; for both the former and the latter happen in several persons.

Sometimes *Ulceration* is made by sharp corrosive humors, as in *Diarrhæa's*, which ulcerate the guts first, then a *Dysentery* of blood follows. Or,

Sometimes from an *Inflammation* of the *Intestines*, or other *Tumor* coming to suppuration, which breaks and makes a *Dysentery*, sending forth blood and corrupt matter.

Sometimes a bloody *Flux* continues a while without *Ulceration*, and afterwards *ulcerates* the guts and makes a *Dysentery*: that is, when this extravasated blood lodging in the guts degenerates and putrifies, it does thereby erode and plant an *Ulcer*, which compleats a *Dysentery*.

Now this kind of *Dysentery* ariseth from an impurity or corruption of the *blood*, which causeth a preternatural fermentation or effervescence in the whole mass; but Nature not being able to depurate and separate from this degenerate admixture, either by *Transpiration* or *Urine*, is forced upon this emission by the *Intestines* without a secretion, and throws out both the good and bad together.

In the prosecution of Cure, as these causes are rightly adjudged, and Medicines adapted thereto, depends the success: and therefore that course and Method which is advantageous and proper to one, may be injurious and altogether disagreeing to another.

And here you must take notice, that *Dysenteries* are sometimes malignant (as commonly when *Epidemical*) and then *Alexipharmacal* Medicines are not to be omitted.

Now concerning the degrees of *Dysenteries*, as to a better and worse, curable or deplorable state, and the signals declaring them; as also several *Queries* that might be raised, and satisfaction given to each; the conciseness of this Work will not admit to enlarge thereon.

In the next place and of great affinity with *Dysenteries* is a *Tenesmus*; agreeing in the causes and Symptoms, but differing in the part affected; a *Tenesmus* being seated at the lower end of the right Gut or Fundament.

The *Etymologie* of the word imports something

thing of the nature of the disease, being a frequent desire and straining downwards to the stool; but instead of excrements, blood and mucous matter is brought forth, and with great pain. This ariseth from an Ulceration of the last Intestine procured from the same causes as Dysenteries, which we need not repeat.

This disease is most dangerous to women with child, for that it causeth abortion: but to all persons it is very troublesom and painful; and if it continues long, the *Ulcer* becomes *fistulous*, and difficult to be cured.

‘And now I remember the Cure of an old *Ulcer* in this part, notwithstanding the contumacy and difficulty thereof. In the year 1653. when I was but a young *Practiser*; yet by the blessing of *God* upon my endeavors I cured a Gentlewoman afflicted with an *Ulcer in ano* for seven years; who could not in all that time receive help, though she had tryed many *Physicians* and *Chirurgions*, having a plentiful Fortune to allow it. She was aged between fifty and sixty, an *Aldermans Wife* of *Max-filde* in *Cheshire*, where I happened to stay in that Town for some time, whereby this *Gentlewoman* beyond her expectation, received a perfect Cure.

To finish our Discourse of *Pains* belonging to the Intestines, we shall conclude with the *Hæmorrhoids*. A disease frequent, and sometimes of great complaint.

The word *Hæmorrhoids* signifies a Flux of Blood
in

in general ; but custom hath restrained it, and amongst *Physicians* it is used and understood only, that effusion of blood by the *Hæmorrhoid Veins*, which Veins terminate at the lower end of the last *Intestine*, and about the Fundament.

These *Hæmorrhoid Veins* are internal and external ; although most of the Ancients and some modern Authors acknowledge only the internal, but erroneously.

The *internal* and *external* Hæmorrhoid Veins do differ much.

As *first*, in their *rise* or *descent* : for the external do proceed from the *Hypogastric* branch of the *Vena cava* ; and the internal from the *Vena portæ* ; and commonly from the splenical branch thereof.

Secondly, in *number* ; the internal being but one, though orbicularly multiplied and divided about the *Anus*. The external are threefold.

Thirdly, in their *insertions* : the internal being inserted into the *membranous* substance of the right Gut : the external into the *musculous* substance of the *Anus* or Fundament.

Fourthly, they differ in their *contents* : the internal carrying a gross and blacker blood : the external more thin, and ruddy.

Fifthly, in their *office* and *use* : the internal evacuates the *Vena portæ*, and *splenical Arteries*, thereby advantageous in some diseases of the *Spleen*, and *Cacochymies*. The external do empty the *Vena cava*, and correct such diseases that depend upon *Plethory* or redundance.

Sixthly,

Sixthly, they differ in *evacuation*: the internal not so copious: the external commonly large in the profusion, and sometimes very injurious, and to some *mortal*.

Seventhly, in *pain*: the internal for the most part painful; the external not, in evacuation.

Lastly, they differ in *association*: the *internal* descending without Arteries: the *external* are adjoined with Arteries to the *Anus*.

The *Hæmorrhoid Veins* are liable to contrary affects, and the diseased do suffer in a different way: sometimes these *Veins* abound with blood and swell for want of apertion, and a discharge; and this is called the blind *Hæmorrhoids*: *è contrà*, sometimes the mouths of these *Veins* do open and pour out too plentifully, either suddenly, or by too long continuance; and this is called the open *Hæmorrhoids*. Both these extremes are grievous to suffer.

The swelling of the *Hæmorrhoid Veins*, and pains from thence, have the same causes as provoke and continue the *Hæmorrhoidal Flux*: *viz.* blood offending in *quantity* or *quality*, which if it find not vent by the terminations or mouths of the Veins, they are extended and swell big, and sometimes inflame; which if it continue is dangerous, lest it become *cancerous* and *gangrene*. On the other side, an immoderate Flux is very pernicious and induceth *Dropsies*, *Consumptions*, *Cachexies*, &c. by exhausting the treasury of life.

These *Hæmorrhoidal Fluxes* continuing unduly

duly and injuriously, argue the blood to be hot and sharp, or too thin abounding with an acrid *serosity*, which provokes the expulsive faculty, and opens the mouths of the Veins. But the blind swelling *Hæmorrhoids* denote the blood to be gross and thick, or the coats that cover the extreme ends or mouths of those *Veins*, to be dense and impenetrable, not permitting an exsudation.

Here it may be queried, how it comes to pass, that these *Hæmorrhoid* Veins should be more troubled with blood, and more frequently suffer an *apertion*, since many other places of the body receive the extremities or terminations of the Veins, and so equally capable of effusion.

In answer hereunto you must understand, that although Nature hath formed the like, and planted them in divers parts of the body, which sometimes, though more rarely, do issue and send forth blood; yet these *Hæmorrhoids* are placed more commodiously for voiding of superfluous and feculent *blood*, being near the common vent and outlet for excrements to pass away; and their situation being downwards, together with the straining upon occasions at the stool, the extremities of these Veins are filled, and sometimes forced to evacuate more frequently than others.

Now concerning the blind *Hæmorrhoids* you may take notice, and know that there is this difference: sometimes the *Tumor* or extension is in the *trunk* or cavity of the Veins, and then there

is no apertion ; and sometimes the extuberance is out of the Veins : that is, when the *extravasated* blood is lodged between the mouths or terminations of the Veins, and the covering coats. In the former case, and when the external *Hæmorrhoid* Veins be so affected, *Phlebotomy* may alleviate, make a revulsion, and draw away the plenitude ; but in the latter it gives no relief ; for the *extravasated* blood will not return into its *canal* or pipe again ; and besides it soon coagulates and putrifies out of the Vessels, the proper place, and then *suppuration* is to be promoted, the *Apoſtem* to be broken, after that absterſion and healing to be designed and endeavoured.

And here you may discern the difference between these two *Hæmorrhoid* painful swellings, that the first kind does abate and retire of its own accord sometimes, Nature retracting and turning the current of *blood* to some other part, at least it sooner yields to means, and is more easily remedied : but the latter will not revert, nor is easily cured ; but proceeds to *Apoſtemation*, and after breaking sends forth corrupt and bloody matter.

From hence you may perceive, that as there are many sorts of *Hæmorrhoids*, so many questions might here be started, and much more to be said concerning them to compleat the Discourse thereof : as why the *Hæmorrhoids* should swell and not bleed sometimes ? Why they are *painful*, and sometimes not ? Why they appear
and

and pass away without injury sometimes? What difference between an *Inflation* and *Inflammation* of the *Hemorrhoids* &c. But to enlarge hereon and give full satisfaction, would swell this Work beyond intention and our limits set at this time.

Pains of the Spleen.

THE *spleen* being a principal part, and of great use in the Body, is also subject to disturbance and great pain.

This member is seated in the left *Hypochonder*, over against the *Liver*, below the *Diaphragma* and under the short Ribs, hanging downwards, in figure like an Ox-tongue, inclining rather to the back-parts, and near the left *Kidney*.

To pass over the different Opinions amongst the ancient and modern *Authors*, concerning the office of this Organ, we shall concur with those that assign the use of this member for a depuration of the *blood*, transmitted from the *Heart*, to receive a farther elaboration there, that the whole mass of blood may be purified and kept in a due state. From whence it comes to pass, that when the *spleen* is injured, out of order, or decayed, and performs not this office aright, the *blood* becomes foul, and many diseases arise from thence, which causeth much alteration

ration in the body : for with the *Spleen* do many parts consent, and well or ill as that is in a good or bad condition.

The *Brain*, though remotely seated, is much affected from hence, causing sometimes *Epileptic* fits, *Vertigoes*, *Head-aches*, mad *Melancholy*, and many other Symptoms, which *Hippocrates* hath observed, *περὶ τῆς τοῦ σπλῆνος νόσου*.

The *Heart* also from a tumified or obstructed *Spleen* is drawn into consent, causing *palpitations* and oppressions. Hence also difficulty of breathing, from a swelled big *Spleen*, hindering the free motion of the *Diaphragma*.

The *Liver* also seldom stands firm, if the *Spleen* be diseased.

And the *Pancreas* for the most part incurs prejudice, being obstructed or *scirrhus*, from an ill affected *Spleen*.

Hence it is, that the *Spleen* challengeth a great share in the production of divers *Cachexies* or ill habits of body, *Dropsies*, *Scorbute*, black *Jaundice*, *Hæmorrhoids*, *Cancers*, &c. of which I might give you many examples: but I shall recite one only, and that very eminent, plainly shewing, that the rise thereof and dependence is sometimes from the Spleen.

‘In the year 1658. a *Cheshire* Woman named
‘*Elizabeth Swaine*, a Farmers Wife, aged 39
‘years, came to me at *Chester*, where I then
‘practised, she living about a dozen miles off;
‘her complaint was of pain, hardness and Tu-
‘mor of the Spleen : before which happened,
‘she

‘she had a tertian Ague for some time; but
‘after that had left her, the left side began
‘to swell, and pain upon the region of the
‘Spleen: this increasing, and when she came to
‘me the Tumor was raised very high, and the
‘compass of a penny-loaf, being very hard and
‘scirrhou, not yielding when it was pressed
‘with a finger. Her desire was to be under my
‘care, and I was willing to undertake the Cure;
‘but she not having brought conveniencies with
‘her to stay, would go home and return speedily
‘with such necessaries as she should want;
‘but came not again until three months after;
‘and then not only the left Hypochonder, but
‘the Abdomen, her whole belly was tumified
‘and extended as big as if she were ready to be
‘delivered of a child: so that the Tumor of
‘the Spleen was then hid, the whole belly being
‘equally raised up to it by a Dropsie Ascites.
‘This neglect of hers, and thereby rendering
‘the Cure much more difficult and uncertain,
‘made me to refuse meddling with her, since
‘by her folly she had lost the opportunity; for
‘I was doubtful and feared that the Spleen by
‘that time was become scirrhou, and the Tumor
‘not to be dissolved, or otherwise decayed
‘and putrified as not be restored: but she having
‘a Sister living in that City, who had been
‘my Patient before, upon both their importunate
‘intreaties (though I would give little encouragement)
‘I unwillingly did put her into
‘a course of Physick; but after I began I endeavoured

deavoured the best I could for her, which was as followeth.

First, I appointed a *Preparative* to be given: which was this.

R. *Radic. utriusq; bugloss. gram. cichor. apii, ana ℥j. polypod. quercin. ʒvi. cort. cappar. median. fraxin. liquirit. ana ℥ss. herb. scolopend. ling. cervin. chamaed. ana M.j. Tamarisc. Mjss. sem. fœnic. dulc. ʒiii. passular. maj. exacinat. M.j. Coq. in aq. & vin. alb. ad lib.ii. colat. ℥iv. adde syr. de pomis magistral. ℥j. rosar. solut. ℥ss. tart. vitriolat. ʒss. Misce pro dos.*

After that I ordered *Leeches* to be applied to the *Hæmorrhoids*, and much watry blood came away, and she found her self something better. Then I appointed a purging *Apozem* for four doses; and it was this.

R. *Rad. filicis mar. cort. cappar. polypod. ireos nostr. liquirit. ana ℥j. herb. scolopend. M.j. cuscut. tamarisc. ana Mjss. sem. alkekeng. fœnic. dulc. ana ʒiii. flor. bugloss. p.j. Coq. in aq. & vin. alb. ad lib.jss. colat. infund. sennæ opt. mund. ℥jss. epithymi ℥j. agar. troch. ℥ss. rhabarb. opt. ʒiii. macis, caryophyll. ana ʒii. calam. aromat. schænanth. ana ʒj. Fiat colat. pro 4 dos. addendo unicuiq; dosi syr. rosar. solut. ℥j. aq. cinnam. ʒss. tart. vitriolat. ʒss.*

Which being taken, the distension of her belly began to abate. After the *Apozem* I gave her a *Chalybeate Wine* for four days, mornings, and

and at four a clock after noon, with exercise;
and at nights three aperitive *Pills* not purging.
The Chalybeat Wine was this.

R. Cort. rad. cappar. polypod. ireos nostr. liquirit. ana ξ ii. herb. scolopend. cuscut. tamarisc. ana M.j. chalyb. præp. ξ ii. vin. alb. lib. iv. Diger. s. a. in balnea Mariæ per dies iv. colat. dulcoret. syr. byzantin. simp.

The aperitive Pills were these following.

R. Gum. ammoniac. acet. scillit. solut. ζ ii. myrrhæ rub. tart. chalybeat. ana ζ ss. croci \mathfrak{z} j. ol. fœnic. dulc. chym. gut. viii. succi cochlear. q. s. Fiat massa.

During which time from the beginning, she was anointed with a *Liniment* all over her belly, morning and evening. The *Liniment* was this.

R. Ol. cappar. unguent. è succis aperit. ana ξ j. Misce.

After this, a *Cataplasm* was applied to the region of the Spleen, every day for a week. The *Cataplasm* was made thus.

R. Panis alb. farin. sem. lini, ana ξ iv. farin. hord. ξ jss. lactis vaccin. lib. jss. Coq. ad exsiccationem, adde mucilag. rad. althææ, fœnugr. ana ξ j. ol. chamæm. cappar. ana ξ j. gum. ammoniac. acet. scillit. solut. ζ iii. galban. bdellii, styracis liquid. ana ζ ii. croci ζ ss. Misce, f. Cataplasma.

After this the pain was gone, and the Spleen began to be soft and yielding. Then I appointed the former *Apozem* to be repeated; which being

Pains of the Spleen.

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being taken, the swelling of her belly was much gone down. After this I caused a *Fomentation* to be applied, morning and evening, for some days; and then ordered the *Chalybeat Wine* to be repeated. The *Fomentation* was this.

R. *Rad. bryon. ireos nostr. ana* ℥ iv. *rad. cyclamin. cucum. agrest. filicis mar. ana* ℥ ii. *fol. lauri, abrotan. absinth. menthæ, salviæ, hyssop. ana* M. ii. *sem. cumin. fœnugr. ana* ℥ j. *flor. chamemel. melilot. ana* M. j. *Coq. in aq. fabror. lib. x. acet. vin. alb. sub finem addit. lib. ii. ad tertiæ partis consumpt. pro Potu.*

After which one purging *Potion* was given, and an *Emplaster* applied to the Spleen, and then both the *Spleen* and *Abdomen*, the whole belly as flat and soft as ever she was, and perfectly cured, and returned home. All which was performed in the space of about seven weeks: and two months after she conceived with child, as I was informed by her relations; and she stood firm in health long after. Notwithstanding the success was very good, and the Medicines well designed, as such preparations will afford; yet in the like cases I do not use the same now.

This in short; and I could not rehearse the particulars so exactly (being twenty years since) but that I have the whole story, with the several Medicines, in writing now by me: and this I have related to confirm what I asserted here

before, that a diseased *Spleen* may lay the foundation for, and introduce a *Dropſie*: and now I proceed on to ſet forth the cauſes of a pained *Spleen*; which being rightly ſtated, applications may more ſucceſſfully be made in that complaint.

The moſt frequent and apparent Symptom that afflicts the *Spleen* is *Pain*; and this doth ariſe and depend upon ſome of theſe ſeveral diſeaſes; *Obſtruction, Tumor, Inflammation, Apoſtemation, Compreſſion, Ulceration.*

Obſtruction in ſome of the Veſſels of the *Spleen*, is a frequent cauſe that produceth pain; and this obſtruction is procured from a feculency and groſſneſs of blood, which ariſeth either from a natural debility of the *Spleen* not able to perform its office duly; or occaſioned by a melancholy diſpoſition, a ſtudioſ, ſedentary, inactive, or a careful and afflicted life; to which, or ſingly, an evil bad diet and irregular *dietetic* cuſtoms may contribute, or effect: (as more fully you may be informed in a late *Traſt* of mine, entituled, *The Preſervation of Health and Prolongation of Life.*) All which impedes the due fermentation and volatization of the blood in the *Spleen*, from whence it becomes thick and foul, and begets a ſtoppage, or too ſlow a motion and fulneſs in thoſe Veſſels.

And whereas the office of the *Spleen* (as before determined) is to ferment anew, *ſpiritualize*, exalt and rarifie the thick, indigeſted and melancholy blood, ſent thither for a farther elaboration

oration and depuration ; it is most rational that this not being performed (from some of the impediments aforesaid) *obstruction* and *stagnation* there will be the consequent ; and the Patient from hence will feel a pain and heaviness about those parts.

But for a more promptness or aptness to these *obstructions*, angustness and straitness of the Vessels, so formed by Nature, does render some persons more prone than others to *obstruction* and these *splenetic* pains.

And farther, this *obstruction* does arise not always from the causes aforesaid ; but sometimes from a *compression* of other parts adjacent that may incommode and offend the Spleen , or by *contusion* from a blow or fall ; or by an injurious *dress* and too strait lacing or girding, as frequently amongst the female Sex.

These *obstructions* when continuing and contumacious, are so aggravated and increased with additional influx, that they form a *Tumor* : this distension being perceptible by sight sometimes, but always by feeling, is to be adjudged and distinguished ; whether soft and *flatuous*, or hard and *scirrhus* ; the former sooner yielding to means, but the latter more difficult of cure.

Inflammation , though rarely , yet sometimes does affect the Spleen ; and this inflammation does arise from *obstruction* ; for the blood being stopt in its current and passage, and upon some extraordinary causes being more hot and fiery, does make a sudden ebullition and inflame, cau-

sing great *pain*, heat and extension; and this pain is distinguished by *pulsation* and beating of the part, having many Arteries. This Inflammation not rightly applied unto by diligent and good means, does make transition, and passeth into *Apostematation*; and sometimes terminates in a *scirrhus* Tumor: but these two dangerous commutations are to be prevented with great care and industry: therefore before the disease arrives to this height, and when only pain or heaviness gives warning, and tells you of a distempered *Spleen*, it is then most seasonable and opportune to apply the means; and then a little may prevent that, which afterwards perhaps a great deal cannot cure.

And first the procuring causes, if any there be apparent, are to be avoided; as a *sedentary* slothful life, *intemperance* and gross feeding, or unseasonable eating, as late suppers; immoderate *study*, *melancholy*, grief or care; which introduce sometimes, but always contribute to aggravate *splenetic* distempers: and although a natural debility and infirm constitution of the *Spleen*, may procure the effects aforesaid without other provocations, yet most frequently they are so caused, at least much heightened thereby; and therefore for prevention, as also for cure, those injurious habits are to be abandoned, and such a *diatetic* course of life observed, as may check this disposition of body, as at large you may be directed in the fore-mentioned Book, The preservation of *Health* and prolongation of *Life*, &c.

For

For *Pharmaceutic* Remedies (that are made publick) I shall commend the aperitive Tincture of *Mars*; *Pil. Antihypochondriac. Swelferi*: chalybeated *Tartar*; *Sal volatil. Succini*; *Spir. Veneris* rightly prepared: which prudently used *pro re nata*, as the several cases require, may prove advantageous.

Pains of the Liver.

BEfore I inquire into the nature and causes of these pains, it will be necessary to let you know, the *office* and *use* of this member, its *situation*, *figure* and *vessels*; for hereby the disease (upon which pains depend) will be more manifest and apparent, as also such parts as suffer by vicinity, connexion and consent from hence.

To enumerate the various Opinions that have been held by Learned men in all Ages, concerning the *office* of this member, would be too tedious; therefore I shall only mention what latter discoveries have proved most rational from the motion of the *Chyle* and *Blood*, which is this: That the *Liver* primarily is appointed to receive the blood coming from the Heart, to give it a farther digestion and depuration, by separating the *bilious* matter; and secondarily, by embracing the *Ventricle*, to cherish and promote the stomachs digestion, or chylification:

cation: for which purposes this member is fitly seated, formed and furnished with vessels to import and export.

The *Liver* is placed in the right *Hypochonder* under the *Diaphragma*, covered in part by the short Ribs, and covering the upper and fore-part of the *Ventricle*: and for firmness of situation it is fastned by three Ligaments, to the *Abdomen*, to the Cartilage *ensiformis*, and to the *Diaphragma*.

The *figure* of this member upon the superior part is convex or round, the better to give way to the motion of the *Diaphragma*; but the under side is concave or hollow, fitly to apply to the extension of the *Ventricle*.

As for *magnitude*, it is various in divers persons, greater and less: and also different in the same persons, in health and sickness: this member sometimes being wasted and shrunk; and sometimes swelled or increased wonderfully big.

This *Organ* hath vessels appertaining to it, as *Veins*, *Arteries* and *Nerves*: the two eminent great Veins of mans Body, *Vena cava* and *Vena portæ*, having their roots variously dispersed here through the *Parenchyma* or body of the *Liver*; the trunk of the former rising out of the superior gibbous part; the latter from the concave and under-side.

The *Liver* being designed for the use aforesaid, seated and accommodated after this manner; we shall inquire into the impediments and preterna-

preternatural conditions, from whence pain and trouble ariseth : for many complain of pain and heaviness in their right side, about the short Ribs, sometimes more forward, sometimes backward, sometimes inward, and sometimes more outward. To what parts these *pains* belong, and the *causes* from whence they arise, is worth our labour to be resolved : for sometimes pains of the *Liver* have erroneously been taken for *Pleurisies*, because the pain hath extended upwards and affected the *Thorax*, by reason of vicinity : and sometimes the *muscular* pains of the *Abdomen* in the right *Hypochonder*, have been adjudged to be *hepatic*, not rightly discerning the *diagnostic* signs.

Diseases which the *Liver* is most subject to, and procuring pain, are these : *Obstruction*, *Adhesion*, *Inflammation*, *Inflation*, *scirrhus* Tumors, *Apostems*, *Ulcers*. From hence we may understand, that as these pains are various in their causes, so are they dissimilar and unlike in the sense of feeling, and differently seated.

Obstructions that impede and injure the office of the *Liver*, and producing pain are frequent ; and these are either in the outmost gibbous part, and do belong to the trunk of the *Vena cava* : or else in the hollow inferior part, and the *Vena portæ* is concerned herein : or else the *obstructions* are fixed in the body of the *Liver*, and then the small *ramifications* of either or both *Veins* are affected. Hence it is, that this member is most frequently infested with *obstructions*,

ctions, because it is stored with so many vessels as none more.

But besides these *obstructions* of the Vessels, there are also *obstructions* in the *Parenchyma* or substance of this Organ; that is, when the small *Meatus* or *Pores* are shut up, that ventilation and transpiration is denied: hence it is, that this member sometimes is preternaturally extended and increased in magnitude, through all its dimensions: for having a continual supply of additional matter, and not duly expended, the part of necessity must be augmented and enlarged. And it is observed by some, that those have the greatest *Livers*, that are of a colder temperature, and such as are great eaters: of this *Cornelius Gemma* gives an example of an Old woman that could not forbear eating and drinking scarce a moment but with great trouble and anguish; and being opened after her death, her *Liver* was found to be wonderfully big.

Signals declaring the *Liver* to be obstructed are; a *heaviness*, *fulness*, or an obtuse *pain* in the right *Hypochonder*; and chiefly after meat, or exercise; and upon more than ordinary motion, the face is apt to be high-coloured, the hands to look red, and the breath to be short, and they are apt to be *feaverish* upon small occasions; but upon rest and ease commonly they are inclined to be pale.

Causes from whence these *obstructions* arise and do depend, are; first, such as remotely dispose; as a plentiful and bad *Diet*, or a gross feed-

feeding upon such meats as are difficult to be digested and distributed (what those are, you will find in the Preservation of *Health*, &c.) also a thick unwholesom *Air*, to be without exercise, and to indulge *sleep* too much; which over-clogs the body, makes a *Plethory* and fullness, whereby the circulation is retarded, laying the foundation and an aptness for obstructions in general.

Secondly and more immediately; from a *viscosity* and grossness of the *blood*, rendring it infliuid, slow of motion, and apt to stop in the vessels: and this is generated in the Liver from its distemper, debility and decay of the faculty; or is transmitted from other parts, and brought in from the antecedent causes aforesaid: to which we may add angustness of the vessels in some persons disposing to this inconvenience.

Obstructions of the *Liver* are carefully to be looked after and removed; because they introduce many other diseases, as *Jaundice*, *Dropsies*, *Feavers*, *Inflammations*, *scirrhus* Tumors, &c.

Adhesion or *Coalescence* sometimes is the cause of pain in the right *Hypochonder*: as when the Liver sticketh to, or groweth together with the *Peritonæum*. And this may happen from too much and constant lying on the right side; or by the magnitude of the Liver extending to the *Peritonæum*, whether tumified preternaturally, or increased by a natural nutrition and growth.

Now pain ariseth hence: the *Membrane* that invests

invests and covers the *Liver* being very sensible, as all Membranes are ; that cleaving to the *Peritonæum* is disturbed and strained by motion or shaking of the body ; or by lying on the contrary side , the weight of the *Liver* endeavouring a separation.

Inflammation sometimes seizeth the *Liver*, and causeth great pain : and this commonly proceeds from, or is the consequent of *obstructions* : for the blood being stopt in its current , and overflowing , especially being more hot and fiery , is then apt to inflame the part : and this is manifest to sense , by heat and tension of the right *Hypochonder*.

Inflammation is known from other diseases of the *Liver* , by the vehemency of the Symptoms that attend this more than in other cases ; for the pain is greater, the *Feaver* higher, and other Symptoms more fierce and sharp.

If the *Inflammation* be upon the superior gibbous part of the *Liver*, it counterfeits a *Pleurisie*, and affects the breast much, by short breath and a dry Cough ; the Tumor then extending to the *Diaphragma* , the Vitals are most affected , and pain reacheth up to the *Jugulum* sometimes : but if it be in the cavous inferior parts, then the *Stomach* is most sensible thereof, by great thirst, nauseating or vomiting.

But lest you be mistaken between an *Inflammation* of the gibbous part of the *Liver*, and that of the *Muscles*, you must observe the difference by sight and feeling ; that the former hath its
exten-

extension circular according to the figure of the *Liver* ; but the latter not : besides the former may be perceived to lye deeper ; the other a more superficial distension.

If the *Inflammation* be in the body or flesh of the *Liver*, the pain is obtuse and heavy : but if the *Membrane* investing be the seat of the *Inflammation*, the pain is more sharp and punging.

Inflammations are better or worse, as the blood is good or bad ; for according to the degrees of pravity and goodness, the *Inflammation* varies ; and therefore a *Phlegmon* is not so vehement as an *Erysipelas*.

Inflammations are very cautiously to be dealt with, both in regard of the present danger, as also for future consequents: for if a right course be not observed in the Cure, although the Patient may escape the acute sickness, and recover ; yet he may fall into a *Dropse* or *Consumption*, and that perhaps incurable ; the *Liver* being so decayed and *tabesied*, as not to be reduced to soundness: hence it is, that after *Inflammation*, *Apostemation* so frequently follows, or a *scirrhus* Tumor.

If the *Inflammation* terminate in, or leave an *Apostem* behind it ; if it be deep in the *Parenchyma* of the *Liver*, it is more desperate : but if the *Apostem* or *Abscess* lyes between the flesh and the covering Coat of the *Liver*, their case is more hopeful : because the matter may be better discharged, and the *Liver* not in so much danger

Concer-

Concerning the termination of this *Phlegmon* or *Inflammation* ; either it spends it self and goes off by resolution ; or it arrives to maturation ; or it ends in a *scirrhus* hard Tumor. The first is only desired , and that which all *Practisers* should aim at in the administration and application of Medicines : the two latter are doubtful and dangerous. In the beginning therefore , *Discussives* and *Diaphoretic* resolvers are the chief means to oppose this disease ; not neglecting to abate *Plethory*, and to make evacuation , thereby to retract and withdraw fuel from the fire.

But if the *Apostem* cannot be discussed, then the best way is to bring it to *suppuration* as soon as may be, lest the part *gangrene* : and if the faculty of the *Liver* be strong to digest and beget a laudable white *Pus* or matter , then there may be hopes of the Patients recovery ; but if it be sordid and stinking , the case is desperate. This matter is evacuated sometimes by stool, and sometimes by Urine ; but if it fall into the *Abdomen* , section must be made to let it out, if Nature cannot discharge it other ways. *Natura in statu præternaturali ab interitu se liberatura sæpe mirabiles quærit vias ac meatus.* Mœbius.

The *Apostem* being thus generated, and arriving to *suppuration* , it breaks , and then the Scene is changed ; for now it becomes an *Ulcer* , and challengeth that denomination. But an *Ulcer* is generated sometimes without *Inflammation*,

Inflammation, by sharp eroding humors, which is not so dangerous as the other; because it comes on gradually, the Symptoms milder, and gives more time for the use of means.

An *Apostem* likewise is gathering in the *Liver* sometimes without *Inflammation*; is not then so painful, nor comes to its height so soon.

Apostems do not always come to *suppuration*, but sometimes they grow hard and *scirrhus*: and such Tumors the *Liver*, and also the *Spleen* are subject to.

These *scirrhus* Tumors do depend upon impacted matter that will not be dissolved; and are the consequents of *Inflammations* or inveterate *obstructions*; procured sometimes by an ill management of their intended Cures, drawing away the thinner matter, and leaving the grosser behind; as by the use of too great dryers and heaters: or by refrigerating and constringing Medicines, do so incrassate the humors as not to be resolved.

This *Scirrhus* of the *Liver* is painful in the beginning before it come to be exquisite and confirmed; but afterwards not: and that which is with pain is more hopeful; the other desperate, because it is in the way to *gangrene*. Those that are thus affected, lye more easie on their right side than on the left; in regard the weight of the *Liver* presseth upon the *Ventricle*, when they are upon the left.

You are to take notice, that *pains* of this *Scirrhus*, and also from other Tumors of the *Liver*

ver or *obstructions*, do not always possess the right side, but *pain* is felt sometimes forward upon the region of the *Stomach*; for as much as one part of the *Liver* lyes forward upon the *Ventricle*: hence it is that many are mistaken sometimes, in judging all pains about the region of the *Stomach* to be pains of the *Stomach*, when indeed they are seated in the left part of the *Liver*.

There is also an *Inflation* of the *Liver*, which is a *Tumor* or extension thereof, from *wind* and flatulent humors, sometimes in the vessels, and sometimes lodged between the investing Membrane and the *Parenchyma*.

This *Tumor* is not hard, but yields to pressure; the *pain* from hence is mutable, shifting its place, greater and less, sometimes ceasing, but returning by intervals.

There are also other causes that have and may produce *pains* of the *Liver*; as *stones* and *worms*, which have been found upon dissection: but being more rare, and scarce to be discovered but after death, I wave the prosecution thereof, and pass on to the next considerable part.



Pains of the Reins and Bladder.

FOR the better understanding of *Pains* in these parts, and their *Causes*, we shall first shew you the formation of the *Kidneys*, and their use; afterwards we shall discover the impediments and *morbous* affects that produce pain.

The *Reins* or *Kidneys* are two, placed one of either side the *Spine* or Back-bone, about the lower short *Ribs*, the one under some part of the *Liver*, the other under the *Spleen*.

In the structure of the *Kidneys*, the most observable for our purpose, are the *Cavities* and *Ductures* in the *Parenchyma* or body of them, and the *Vessels* leading to and from. The substance of them is much like to that of the *Heart*.

There are two *Cavities* in the *Kidneys* being larger than the rest, into which the smaller Pipes do convey and empty themselves as containing *Cisterns*: and out of these again there are other small conveyances to transmit and send it forth: there are also certain pervious *Carnacles* or *glandulous* substances, through which the *Serum* is strained; and thus the water is transmitted by percolation.

The *Vessels* bringing into the *Reins* are the *emulgent Arteries*; and these draw a *Serum* from the great Trunk of the *Aorta Arteria*, and

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import it into the *Kidneys* (the *emulgent* Veins from the *Vena cava* were thought by the Ancients to be for the same purpose ; but latter discoveries contradict it)

They also receive from the *lacteal* Veins the thinner and more watry part of the *Chyle*, being an expedite and shorter way : hence it is the Urine is pale or whitish, when the *Kidneys* are not strong enough to give this *milkie* humor the urinary digestion : or when drink is too plentifully poured in, and forcing through before its due time ; therefore great Drinkers commonly piss a pale water.

There are also *Nerves* inserted into the *Kidneys* from a branch of the sixth pair, which also serves the *Ventricle* : hence it is, that the Stomach is drawn into consent, by loss of appetite, nauseating and vomiting, when the *Kidneys* are pained, as in a fit of the *Stone* it is manifest. By these *Nerves* the *Kidneys* do suffer not only a heaviness, but sometimes very acute pains.

Vessels carrying the *Urine* out of the *Kidneys*, are the *Ureters* ; one belonging to each *Kidney* : and they pass from hence down by the Loyns, between the two Membranes of the *Peritoneum*, and are inserted into the *Bladder*, to convey the Urine thither.

The length of these urinary ductures are about a span ; the cavity or hollow like a straw ; but capable of enlargement to the bigness of a finger. as by a *stone* coming down, though with extreme pain, by reason they are membranous and

and nervous, exquisitely sensible; and therefore upon any obstruction are highly urged to expulsion, especially by a solid, sharp or rugged body, as *stone* or *gravel*.

Hereby you may understand the *office* and *use* of these parts; that is, to drain the body from a superfluous, *saline* and *tartarous* serosity; and this ought daily and duly to be performed: but this *serosity* is not all discharged this way by the *Reins*, but some passeth off by insensible *Transpiration*, and some by manifest *sweats*, but the greatest part by the *Kidneys*. And from hence it appears, that the *Urine* is partly an excrement of the first digestion, in respect of the *aquosity* drawn from the *lacteal* Juice; and partly of the second, in respect of the *Serum sanguinis* exhausted from the blood by the emulgent *Arteries*. And here you may observe, that by a certain digestion or elaboration in the *Kidneys* these *serosities* are transmuted into *Urine*, and then carries an *Odor* or scent with it, much different from what it was before: and the like we may observe in other creatures, that their urines have peculiar smells, which argues a *digestive* transmutation.

But although Nature intends and endeavors this work constantly; yet there are many casualties and impediments to disturb these parts, and frustrate in some measure the designment of Nature: the errors and failings herein we shall recite; but those chiefly that are accompanied with, or produce pain we shall discourse of with brevity.

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The general and most frequent Symptoms that manifestly afflict or incommode the *Reins* are *Pain* and *Weakness*, or *Tenderness* about those parts.

Diseases planted there, from whence those pains or weakness do arise and depend are,

Intemperate Heat.

Imbecillity and a declining *state*.

Consumptive diminution and wasting.

Inflammations.

Scirrhus Tumors.

Angustness and *Obstructions* of the Cavities and Ductures.

Apertion of the Vessels.

Apostems.

Ulcers.

Some there are whose *Pains* are hot and molesting; not by a natural constitution, but acquired by time and evil customs, or accidents happening to those parts: and this begets a tenderness there, and it is painful to lye on the Back.

The *Urine* most frequently is hot, or high-coloured; sometimes sharp, and then apt to make water often: prone to *Venery*, at least the constitution of those parts does dispose that way.

Causes introducing this distemper are, too frequent use of *Wine*, strong *Drinks* and hot *Spices*, much *Riding*, lying on the *Back*, and soft *Beds*, or too frequent *Venery*: and for a correction of this distemper all these procurers and

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and aggravators are sparingly to be used, and some of them to be avoided and forborn.

But if this intemperate *Heat* depend upon any other disease seated there, disturbing the office of the *Kidneys*, and raising a preternatural heat; then Remedies must be applied to that, as the nature thereof does require, which being removed, this heat will allay and cease.

Imbecillity and weakness does sometimes affect the *Reins*, and a decay in the performance of their office may be perceived; and if this be not the consequent of some manifest disease, debilitating and rendring them incapable, then you must know that

There is a natural *Robor* and fortitude implanted in every part by Nature, whereby they execute their functions with integrity and constancy: there is also an unequal *distribution* of this vigor and strength, that some parts naturally are strong and durable in their stations; others are not so firmly radicated in their principles, but by time spontaneously fall off from their duties, and decay much sooner than other parts of the body. Hence it is that some, though regularly living, complain of this part, others of that.

There are also *occassions*, *accidents*, and different manners of living, which we call *Dietetic* customs; which as they are various, do variously injure and decay this or that part of the body, and cause it to decline sooner than the rest. Imbecillity therefore of the *Reins* comes

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under some of these notions, and hath its original from thence ; which when such a case presents , examination is to be made , to which of these the case belongs and is to be ascribed.

Now that which I call Imbecillity or a decayed state , is when the *Reins* do not make a due secretion or separation of the *Serum* from the blood , and give it the *urinary* transmutation : so that from hence the *Urine* is but little , and that not well digested : the injurious consequences whereof are many ; for the blood remaining too much diluted , and over-charged with the *Serum* or watry part ; which being distributed throughout the body , and falling upon this or that part , cause many *Hydropic* diseases , and some of them mortal : as examples hereof might be given.

The next considerable is , *Consumptive* wasting, diminution, or lessening of the *Kidneys*, not by ulceration , but exsiccation ; proceeding from a hot and dry distemper of the *Kidneys*, arriving to a colliquating *Hætic* , or *Tubes* ; which by time begets a Consumption of the whole Body : procured sometimes from a *salacious* temperament.

There is felt a heaviness and weakness about the *Loins* , and the *Kidneys* do not perform their office aright.

Inflammation sometimes possesseth the *Reins* : caused by pain of the *stone*, *gravel*, or otherwise by *obstructions* : sometimes by a *blow* or *fall* ; also by an influx of *blood* , or any foul corrupt matter.

matter transmuted thither and lodged there, obstructing the passages, and causing a suppression of Urine.

This disease is always accompanied with an acute *Feaver*, great *Thirst*, astriction of the *Belly*, heat of *Urine*, and great pain about the *Loins* : and if the Arteries be affected, the pain will be with pulsation : Sometimes a *Delirium* attends, with long watching ; and if the *Inflammation* be in the *Membrane*, the Patient is scarce able to sit upright, because the pain thereby is exasperated.

If the right *Kidney* be affected, pain extends upwards to the *Liver* and short Ribs, and downwards to the *Genitals* ; also a *stupor* seizeth the right Thigh by consent ; the Nerve being compressed that passeth thence down to the Thigh, But if the left *Kidney* be the part affected, that side is most grieved, and in like manner : but if both the *Kidneys* be attacked, then the Symptoms on both sides are equal.

The termination of these Inflammations are either by an *Apostem* or *Abscess* ; by induration and a *scirrhus* hardnells ; or by *Transpiration* and resolution : which last is the only safe and secure way, and this the *Physician* ought to design for, and aim at in his administrations.

But if contrary to his endeavors, the *Inflammation* *apostemates*, *suppurates*, and breaks, evacuating the purulent matter by the *Ureters* into the *Bladder*. there is good hopes of safety ; but if it be discharged inwards by the *emulgent*

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Veins, the case is desperate.

Scirrhus Tumors in the next place come to be viewed; and these are hard Tumors very difficult to be removed: being the relict of an *Inflammation* or other *Tumor* preceding, and not well cured: or formed by gross matter congested and accumulated there, causing contumacious *obstructions*: for humoral matter flowing thither, and being obstructed in the transition, the heat of the part does exsiccate and harden it by time more and more; and then by accumulation and addition forms a *Tumor*.

This causeth heaviness about the Loins, but little pain: the Urine is but little also, and that pale and watry, in regard the office of the *Kidneys* is debilitated, and by reason of the angustness of the passages, letting pass the thinner, but retaining the thicker part of the Urine.

The longer this *Tumor* continues, the more difficult and incurable it becomes; and withal, it brings on *hydropic Cachexies*: for the superfluous serosity not being drained away, regurgitates back into the body.

The Cure is to be set upon with internal and external Medicines: *Aperitives*, *Resolvents*, *Discussives* and *Emollients*.

Apertion of the Vessels, contrary to Nature, sometimes does threaten danger, by the appearance of *blood* staining the *Urine*: and this proceeds from a weakness of the Vessels, being relaxed in their retentive faculty; or by a plenitude and fulness of blood; or because the blood is thin
and

and sharp, which causeth the mouths of the Vessels to open.

On the contrary ; *Angustness* or straitness sometimes does incommode the Vessels appertaining to the *Reins* , which hinders the free transmission of the *Urine*.

Now this angustness of the Vessels does arise either by *compression* from some *Tumor* , or distended part that presseth upon the Vessels and straitens them from without :

Or by *contraction* or constriction of the Vessels that are shrunk ; as by great heat in long Feavers, or a *Tubes* that seizeth the *Kidneys* :

Or lastly , by *obstruction* within from some viscus matter, grumous or clotted *blood*, *sand*, *gravel*, *stone*, &c.

The *sign* declaring these obstructions, is a suppression of *Urine* with *pain* ; or an abatement of the usual quantity, not answerable to the drink received. The place or part affected, whether in the *Kidneys* or *Ureters* , is known by the seat of pain.

The causes that obstruct are known by their proper *signals*, and by examining into the preceding state of the *Patient*.

The place or part grieved with these obstructions, whether in the *Kidneys* or *Ureters*, pain discovers, and the dislodging or shifting thereof.

Of all the *obstructions* that infest the *Kidneys*, the most frequent and saddest complaint is from the *Stone* ; this being the most contumacious

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macious obstruction, the most painful, being a hard solid body, and the most uncertain Remedies for relief.

Concerning the generation of these Stones, there have been various Opinions amongst Learned men: in short, the difference and contest hereupon may be reduced to these two Heads; what the *material* cause of the *Stone* is, and what the *efficient*.

For the *material* cause, or matter whereof the *Stone* is bred; *Galen* and most of his Disciples will have it to be, a *phlegmatic*, gross, or viscous humor apt for condensation and induration: and the *efficient* to be *heat* exsiccating this matter, and bringing it to a stony hardness; but others of them will have this to proceed from *cold*, by way of congelation.

But this Doctrine cannot hold as rational, nor does it answer experience: as for the matter we cannot allow it to be such; for as much as many that abound with a viscous tough *Phlegm* and slimy matter, as most ancient people do, yet many of them are never troubled with stone or gravel. And for a concurrence of both the causes, material and efficient, we have examples of the *Aged*, who are most cold and *phlegmatic*; and for abounding heat with the like matter, we may produce *Feavers*; yet no stony concretion or signs thereof to be found from such sicknesses: So that we are now to seek for other causes both *material* and *efficient*, whereon to ground our endeavors for the relief of such as are afflicted with this disease. The

The matter therefore and substance of the Stone, is from a tartarous and saline *juccus*, with the addition of a terrestrial feculency, concreted or petrified by a lapidifactory Spirit or disposition of the Reins, which is the efficient and seminal being of that production.

The concurrence of both these causes does much produce the *Stone*, and afflict the *Patient* in a high degree: but one of them is sufficient, *viz.* this *petrifying* power of the *Reins*, to coagulate any laudable good matter imported there, into a stony substance: To confirm this, *Fernelius* relates upon his own knowledge of one that for three or four months together, above a dozen small *stones* came from him every day; all which time notwithstanding, he eat nothing but Broths and Panadoes, being confined to his Bed by weakness and pain.

But allowing this to be true from the credit of the *Author*; yet we must owne and acknowledge, that besides this principal cause of a *petrifying Spirit* in the *Reins*, there are also antecedent and *procatartick* causes adjuvant and promoting; as some sorts of meats and drinks, and other errors in the *Dietetics*, that increase and set forward this disease, which otherwise might be much slower in generation, nor yet arrive to so high a degree of torture: also the *Stomach*, *Spleen* or *Liver* not performing their functions rightly, may contribute matter to the promotion hereof.

For relief of the diseased in this case, there
are

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are two grand intentions to be prosecuted, and aimed at: a *dissolution* of the body of the *stone* already generated; and secondly, the taking away of the *petrifying* disposition of the *Reins*, and abolition of that coagulating ferment: and for these purposes were *Paracelsus* his *Ludus* and *Aroph*; also the *Alkabeft* cannot fail herein.

But such as have not acquired the great *Ar-cana's*, and cannot procure a dissolvent for the *Stone*, that is, to make an *Analysis* or resolution of it into a liquid juyce, and reduce it back again to its humoral flowing state, capable of absterfion and cleansing out, must endeavor to facilitate the exclusion of this hard body, by the best and most hopeful means for that purpose, by *lubrifying*, *relaxing*, and *dilating* the passages, and allwaging the *spasm* and contraction of the *Ureters*, that the *stone* may slide away much sooner, and with less pain: hence by way of caution observe, That *Diuretics* and provokers to expulsion are not to be given, before this preparation be made, else you precipitate the *Patient* into danger, and increase his torment, dislodging and forcing the stone through angust and very tender cavities, not provided to give passage without detriment to this unwelcome stranger.

And thus much briefly concerning *petrification*, or the production of *Stones* in the *Kidneys*; I proceed on to the next, a most difficult and painful disease belonging to this Member, namely *Ulcers*.

Ulcers

Ulcers of the *Kidneys* are introduced several ways, or take their rise from several causes.

1. *Acrimony* and sharpness of humor passing this way, and continuing long, does *excoriate*; which not timely observed and remedied (because pains at first are but small) does corrode farther, eat into the flesh, and plants an *Ulcer*.

2. The *Kidneys* are ulcerated sometimes from an *Inflammation* or other *Apoſtem* there, coming to suppuration and breaking, which dischargeth the matter by *Urine*, or otherwise, but leaves a putrid *Ulcer* behind.

3. Sometimes from a clot of *blood* extravasated or out of its place putrifying, does infect the part, *tabifie* and *ulcerate*; and not to be neglected, lest this be the consequent.

4. Sometimes a *Stone* being rough, angular or sharp, frets or grates upon the parts, and makes a solution of continuity, which at first sends forth a *bloody Urine*, afterwards *purulent* and begets an *Ulcer*: and this last is the most frequent cause that generates *Ulcers* in the *Kidneys*.

These *Ulcers* are discovered by *pain* about the *Loins*, a *purulent Urine*, and sometimes *Carruncles* or small fleshy rags, or strings of concremented blood is brought forth with the *Urine*, accompanied commonly with heat in the *Back*, and sometimes faint *Sweats*, which continuing, bring on a *Consumption* and *Heſtic* Fever.

Of these *Ulcers* some are more sordid, foul and stinking, as the *Urine* does declare: others not ill scented, the *Pus* white, not viscons, but cloudy and light.

The

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The difficulty of these Cures lyes here; for that the Urine which is acrid flowing always by the *Ulcer*, hinders the consolidation of the part: besides, the situation being remote, the virtue of a Medicine is much altered before it arrive to the part: but in the designment and managing of these Cures, the body must be well cleansed, not with the common *deleterious* Purgers, but *balsamic* Deterfives; and so kept with a proper *Dietetic* regimen, as no impurity or sharp humors disturb or abate the power of Medicines, which must be truly *balsamic* and healing.

The experience of these Ulcers I have had several times, both many years since and lately. 'I remember in the year 1652. I cured an Ulcer 'of the *Kidneys* in a man about thirty years of 'age, living near *Sheffield* in *York-shire*, who 'came to me four miles twice a week during his 'Cure; I being then for a while at *Norton* upon the edge of *Darby-shire*. His Urine was 'hot, sharp, and stinking, with a great purulent 'sediment; a great pain in his Back, with 'scorching heat, and often flushing faint Sweats 'all over his Body. Indeed I have wondered 'since how I did perform such a difficult Cure 'then, having so little practical knowledge, I 'being but a Tyro in this Art, it being in the 'first year of my Practice, and newly graduated 'Batchellor in Physick: but Providence had appointed me the instrument to free this poor 'man out of his pain and languishing condition.

Since

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Since I have been acquainted with several of the like cases, and may with better assurance promise a Cure, from tryed Medicines acquired by experience, beyond what Book-practice does communicate: and this last year here in *London*, I cured a Gentlewoman of an Ulcer in the Kidneys.

In the next place we are to take notice of *Pains* belonging to the *Bladder*.

The *Bladder* is the last receptacle for the Urine, and performs the office of a *Cistern* to the Body, for keeping and discharging the Urine at convenient times; and therefore is capable of distension and contraction, being a membranous bag, furnished with right, transverse, and oblique *Fibres* for that purpose: and hath two *Muscles* at the neck of it, to let go or retain the Urine.

This part is liable to great grievances and painful infirmities: as *Distension*, *Obstructions*, *Inflammation*, *Excrescences*, *Ulcers*, *scirrhus* hardness. From hence come *suppressions* of Urine, *imminution* or small quantity, *ardor* or heat of Urine, *Strangury* or dolorous emission and dropping, *incontinency* of Urine or difficulty of retaining it.

Distension of the *Bladder* happens from too long retaining of the Urine, whether it be voluntary or involuntary: so that afterwards the *Fibres* do not recover again the power of contracting the Bladder: and this may prove of dangerous consequence, and to some it hath proved mortal.

Obstru-

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Obstructions of the *Bladder*, causing a suppression of *Urine*, or diminution, dolorous or difficult excretion, does arise from many causes: as a *stone* in the *Bladder* or gravel, coagulated blood, worms, a viscous humor or purulent matter, a *Caruncle* or *Tumor* in the neck of the *Bladder*; or by compression from a tumified part adjacent; as the *Womb* or right *Intestine*.

Inflammation sometimes happens from extremity of pain by the *Stone*, *Ulcer*, or other torturing cause; and these *Inflammations* are commonly mortal.

Ulcers do possess the *Bladder* sometimes, and most commonly in the neck thereof, caused by a *stone* or gravel excoriating and wounding the part: or by an eroding purulent matter coming from other parts, and lodged there; or by a continued *Acrimony* and sharpness of *Urine* corroding: sometimes from an *Inflammation* or *Abscess*: more rarely, but it hath happened sometimes, from a *Gonorrhœa* ill cured; and I may say very ill indeed; for the *Ulcer* thus procured, is of far greater difficulty and danger than the *Gonorrhœa*.

Not long since an *Ulcer* of the *Bladder* was committed to my care, being the relict of a *Gonorrhœa* ill managed by a *Chirurgion*, using *Restringents* unseasonably.

Ulcers in the *meatus Penis*, as also in the *Prostates*, are more frequently offered to our help: as lately another person applying to me having an *Ulcer* procured in the *Prostates*, from the
like

like improper and pernicious course: and although *Gonorrhæa's* are frequently cured, and may with much certainty and safety in skilful hands; yet there are many that patch up a seeming Cure for the present, but future consequents are sad *memento's* of their Undertakers folly. And at this time I have a Patient, repenting that ever he committed himself into the hands of a practising *Apothecary*; for he by stopping his *Gonorrhæa* before the *virulency* was eradicated (which I judge was done by astringent Medicines) the *Patient* was forced to leave his Undertaker, and came to me in a painful and dangerous condition; one of the *Testicles* being inflamed, hard, and swell'd as big as a Turkey-egg.

By such miscarriages some have been quite lost; others have been perplexed and almost ruined afterwards with difficult and very chargeable Cures: as not long ago, a *Gentleman* came to me, who had spent above five hundred pounds, having been under several *Physicians* and *Chirurgeons* of good repute, for some years; being reduced to such a difficult state, from the imprudence of his first Undertaker.

Ulcers in the *Bladder* are known by pain about the *Os pubis* and bottom of the Belly; a strong or stinking Urine, if the *Ulcer* be sordid; a purulent or furfuraceous matter floating; a hot or sharp Urine, which causeth a painful discharge thereof, and sometimes with

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difficulty, if any excrescence or viscid matter obstruct the passage.

These *Ulcers* have been accounted incurable by our Predecessors; but this Age hath given testimony of their curability; and my self have had good success in these undertakings to the relief of some thus affected, and great satisfaction to my self.

Verruca's, Caruncles, or fleshy Excrescences do infest the neck of the Bladder; and sometimes the *Urethra* or urinary ducture; and these commonly are the products of a preceding *Ulcer* or *Gonorrhœa*, and sometimes conjoined therewith.

And now we have briefly declared and run through the several *pains* that belong to the *Kidneys* and *Bladder*, remarking the diseases whereto they belong, and from whence they do arise: it remains in the last place, that we set down the principal *morbous* affects, discovered or intimated by the *Urine*.

Capital Symptoms that attend the *Urine*, denoting some diseases or infirmity considerable, in the parts that belong to this urinary office, are chiefly these: a *bloody Urine*, *sand* or *gravelly*, *oily* or *greasy*, *purulent* or *furfuraceous*: too much *Urine*, or too little, a painful *suppression*, or *emission*: a *white water*, *red* or *black*: *stinking*, or strong-scented: *hot* or *sharp*.

And thus having traced through the *Head*, *Breast* and *Belly*, examining the most frequent and remarkable pains thereof; it remains that we

we inquire into those pains that possess the *Limbs*, as *Legs* and *Arms*, of which in the following Paragraph.

Gout-pains and Rheumatism.

IN this our Catalogue of Pains, we must not forget to insert *Arthritic* or *Gout-pain*, being so eminent a Tormentor, so contumacious and resisting, that oftentimes it hath bid defiance to the potent means of the most reputed *Physicians*; hereby gaining the name with many, and accounted amongst the number of incurable Diseases: from hence the endeavors of the most are rather to palliate than to cure, as having no hope to effect so great a work.

I must confess that mitigation and allay of pain is very acceptable to the tortured *Patient*, and not without a deserved praise to the *Physician*; but to acquiesce and rest here as the *ne plus ultra*, is too inferior a station, and below the dignity of his function: we will therefore make a farther inquiry into the nature and difficulty of this contumacious Malady, thus posted; possibly thereby to meet with some encouragement, and to find out a way conducting us to such advantageous approaches, as may dispossess and subdue this grand enemy.

Arthritis the Gout, is so denominated from *ἄρθρον* *Articulus* the Joynt, and is the generical

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word comprising several particular species thereof, having their distinguishing names from the part affected: as *Podagra* the Foot-gout, *Gonagra* the Knee-gout, and *Chiragra* the Hand-gout: but *Rheumatism* takes denomination from motion or fluxion; *Rheumatismus*, *fluxio*, from *ῥέω fluo*; this kind of Gout not fixing here or there, but moving from part to part, is therefore called the running Gout.

I shall treat of these several *Gouts* together, because of their affinity with each other in their continent cause, and differing only as to the *sedes morbi*, which may cause some variation in practice, but not much.

Concerning the continent cause of the Gout, there are various Opinions; some determine it a sanguine humor, others phlegmatic; some a choleric, others melancholy, and some a mixture of these humors. *Hippoc. lib. αὐτὸ παθὼν*, will have the Gout to arise from *Choler* and *Phlegm*; *Galen de comp. medic.* says, the humor is sometimes *sanguine*, but for the most part *phlegmatic*, or *Phlegm* and *Choler* mixt. *Trallianus* also an ancient Greek Author *lib. 11.* derives the Gout from *Blood*, *Choler*, *Phlegm* and *Melancholy*; farther affirming, that if the several kinds of the Gout, arising from the different mixture of these humors were rightly known, this disease were easie to be cured.

Thus from the difference of opinions and mistakes concerning the *Gout*, the designment of Cure, and means adapted thereto have been various,

rious, and also frustraneous : other improbable opinions there are, but I wave the recital of them, and come to set down what is most consonant with reason, established upon latter and clearer discoveries.

And here I must premise a few things as introductory, but necessarily serving to our present purpose.

Food which sustains and repairs the body is meat and drink ; of meats some are liquid, others solid : but the solid and dryer meats coming into the stomach, are macerated, liquefied and transmuted (by the digestive power thereof, and assistance of ingested liquors) is changed into a liquid juyce called *Chyle* : this Chyle being exported out of the stomach, receives several alterations afterwards in the various parts through which it passeth, and is become a milky juyce in the *Venæ lacteæ*, blood in the *Veins* and *Arteries*, water in the *Lympha-ductus*, and a spirituous exalted *Succus* in the *Nerves* ; and all these for various uses and purposes ; but still keeping in a liquid form, and flowing in the Vessels containing. And to prevent stagnation or stoppage of their motion in the several small Pipes of conveyance through the body ; hence it is that all the humors or juyces of the body, do participate much of *water*, or a thin watry and fluctuating substance called *Serum*, by some *Lympha*, by *Helmont Latex* : which being thus appointed for a distribution of the *Chyle* and *Blood* ; hence it is that *Hippocrates* fitly calls it

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ὄζυγος ἡ τροφή, *Vehiculum nutrimenti.*

This *Serosity* or watry part abounding, is not easily contained in the Vessels or Conduit-pipes, especially being depraved, become sharp and penetrating with a *Tartarous* saltness; but either by *apertion* or *exsudation* is let out; and where it takes its course, discharging it self upon some tender part, there pain and trouble ariseth.

Thus the *Gout* takes its beginning from an acrid or sharp *saline serosity*, invading the *Ligaments*, *Membranes* and *nervous* parts about the *Joynts*, lancing those tender and very sensible parts.

But how this *Serum* comes to abound, and how to be depraved, is worth our inquiry; for from hence is the designment of Cure grounded, to prevent and take off both the one and the other. So long as it remains in its due state for quantity and quality, it is very necessary and useful to the body; but when it degenerates or is redundant, it raiseth disturbance variously, according to the parts it does infest: hence *Catarrhs* or destillation of *Rheums* into the *Eyes*, causing them to be sore, hot and inflamed: sometimes upon the *Lungs*, causing vehement *Coughs* and shortness of breath: from hence *punctures*, stitches or sharp pricking pains in divers parts of the body; *Head-aches*, *Tooth-aches*, spurious *Pleurisies*, *Rheumatisms*, *Arthritic* or *Gout-pains*.

Now this serosity does abound, either from a deficiency of the digestions, and transmutation of

of alimentary matter received : or from a deficiency of secretion or discharge of it by those *Emunctories* appointed for that purpose ; for as there is a continual supply by eating and drinking, so there ought to be a proportionable discharge.

First, From a defect of digestion in the *Chyle* and *blood*, when they do not attain that compleat state as Nature hath required ; but receive only a crude and imperfect transmutation : and this sometimes procured from an injurious sort of meats and drinks, or offending in quantity ; as much *Fruits*, small *Beer*, *Water*, &c.

Secondly, From an insufficient discharge, and for want of due evacuation, this *Serum* does abound and become superfluous : that is, when the parts destined by Nature to separate, attract and transmit this serosity of the *Chyle* and *blood*, do not perform their office duly ; as when the *Lymphaducts*, *Spleen* or *Reins* are deficient in their functions ; also when the *Pores* are occluded, and Transpiration hindred, these occasion the overflowing and abounding of this *serosity*, having not its right conveyance, due vent, and discharge.

This *Latex* or *Serum* rarely continues in a solitary state of redundance, but also is then soon vitiated and becomes depraved : for as our meats and drinks are endowed with a *Tartarous* and saline principle ; so this *Serum* is impregnated therewith, and abounding variously as the food received contains variety of Salts ; which disco-

ver themselves and appear more or less, according to the strength or debility of the digestive power of fermentation, being able to subdue and subject them to the service of the body; or otherwise to suffer them to be exalted in their peculiar natures: and then as they are more sharp or milder, so is the pain and disturbance from them greater or less.

But how this *saline serosity* does discharge it self upon the Joynts, and affect them with pain, is (by the consent of Authors) from a laxity or imbecillity of articulation, or promptness of the Joynts to receive: but this reason I cannot close with, since a more probable and rational may be given, which is from the formation and conformation of parts, as thus: That when the *Serum sanguinis* this serosity does *effervesce* and *ebullire*, estuate and grow turgid in the great Vessels of the Veins and Arteries, afterwards in the smaller Vessels; then it comes into their branches, and so to the extremities and terminations of them; which terminations (most of them) are placed in the Joynts, where they do *effundere*, discharge and let out this hostile injurious *Serum*, and therewith torment the Joynts, causing sharp lancinating *Pains*, *Inflammation* and *Tumor* of the part, &c. such Symptoms as attend the *Gout*.

As the *Gout* makes its progress from one state to another; so the Symptoms supervening do vary and appear gradually, as the disease arrives to its height and fierceness. *First*, the part affect-

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affected is more tender and sensible than usually, also less active and vigorous in motion: and before a fit of the *Gout* oftentimes a general indisposition or *febrile* heat disturbs the Patient; the blood then fermenting for a purification, casts off this *morbid tartarous serosity* upon the Joints. The part thus affected most commonly is *tumefied*, and sometimes *inflamed*, pains increase and grow very sharp, and in some by time and continuance of this disease a *tophous* hardness or *Nodes* seize the part as the relicks and insignal characters thereof.

Some have the Symptoms of the *Gout* in a remiss degree, only at changes of the weather and seasons of the year, and are not confined to the house by a considerable seizure and great pain, but can walk abroad, although with some complaints and indisposition: others are attacked more violently, and so disabled, that they are laid up and deprived of their liberty.

To some the *Gout* is hereditary, derived from their parents in the principles of their Nature, and will shew it self, although they be of a strict and regular life: to others it is adventitious, arising from the procuring causes of this disease in the course of their life; by intemperate and inordinate, or incongruous way of living in the *Dietetics*, unsuitable and unfit for their condition of body.

For Cure of this Disease, these aims are to be intended and prosecuted.

First, That this *saline* acid humor be prevented

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ted and stopt in the fountain or spring, the parts mandant from whence it does arise, that a future supply may not be generated.

Secondly, What is already produced, may be mortified, absterfed and evacuated out of the body.

Thirdly, That the parts recipient, invaded and debilitated, may be eased, restored and roborated.

The first intention is performed by such means as *rectifie* and *fortifie* the digestions, whereby their elaborations and transmutations of aliment received may be pure in their proper natures and free from any degenerate mixture: and here both good Aliment and good Medicament is required: for election of meats and drinks, and other Diætic rules necessary for gouty persons to observe, consult that Book called, *The Preservation of Health*, &c. where at large you are advised, and too much to insert here. For Medicament, gentle *Vomits* are profitable, both for cleansing and removing of the fundamental matter; as also for a revulsion from the part affected, and retarding the current thither: but where that operation is not convenient, then keep the stomach clean with a good *Purgative* downwards: the best Shop-medicines for this purpose is *Pil. stomac.* and *Aloephangin.* also *Syr. de spina cervin.* and *Elixir propriet.* in the intervals.

The second designment is attained by *Alcalies*, whose properties are to correct and kill all acidities

acidities and corrosive sharpness: and these are the Salts of Vegetables made by Calcination: and next to these are Absorbents that imbibe and tame acids, being alkalifate or affine to *Alkalies*: as *Oculi cancror.* *Coral.* *Chela canc.* *cran.* *human.* *corn. cer.* *nst.* *margarit.* *sacchar. Saturni,* &c. But besides these, *Cathartics*, *Diaphoretics*, and *Diuretics* are to be used in due order; whereby the tartarous matter residing or fluctuating in any part of the body may be sent forth several ways.

To perform the work of Purgation you may use *Arcanum corallinum* and *Pilule Antimoniales* prepared to work only downwards, which are of the better sort of Medicines made publick: in my own Practice I use *Pil. Arthritica nostr.* which seldom fail my expectation; being seconded by some other Medicines in their due place.

After Purgation promote *Transpiration*, for this does much abate and scatter the superfluous *serosity*, driving it *à centro ad circumferentiam*, and transmitting it by the Pores; and may be done with δ *diaphoret.* or with *decoct. rad. bardan.* *sassaparilæ*, *chinæ*, *sarsaparillæ*, *card. benedict.*

Also Evacuation by Urine is of great advantage to spend and drain the acrid *Serum* that way: and to set forward this operation, use *Sal succin.* or the Mercurial liquor that separates from the Oil and Salt after distillation: also *Sal volat. urine* & *viper.* are profitable.

To effect the third intention, *Topical Medi-*
cines

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cines to assuage pain, to discuss and roborate, are useful and necessary to relieve the part affected.

For allaying pain in time of extremity, this *Anodyne Cataplasm* hath been used, and commended for successful: *Rad. lilior. alb. althææ ana ℥ii. fol. parietar. hyoscyam. ana M.j. Coq. lact. vaccin. q.s. in mucilaginem, addend. micæ panis alb. ℥ii. pulpæ cassiæ ℥j. croci pul. ʒß. ol. rosar. q. s. fiat Cataplasma, s. a.* This Medicine is well designed and congruous in all its parts; and like unto this several others for the same purpose may be formed, and which will perform the intended effect: yet they cause a relaxness, and leave the part weak and tender: Unguents and Liniments upon the same account are cautiously to be used: but *Lixiviums* to foment the part affected, are profitable to assuage, discuss, and roborate.

But they that will take a little pains to procure a good Medicine, let them unite *Sal volat. urinae cum spir. vin. rectificat.* by digestion and circulation, in which if you dissolve a little *Camphire*, you have then an excellent Topic Remedy both curative and prophylactic, with which you are to foment the part every day.

Or if you will make a Cataplasm *cum micæ panis alb.* macerated in *spir. vin.* addend. *croci parum*, you have then a safe and good Medicine.

Some do adventure to use Restrictants, Repellers and Coolers, to drive back the humor flowing; and they are made of *Bol. armen. sang. dracon.*

dracon. malicor. album. ovor. acetum, and such like; but this is hazardous and dangerous to give the morbid humor a sudden check, which may return upon some noble part; therefore I advise against such attempts, being not rational, and experience hath confirmed their fatal events.

For a *Prophylactic* Remedy, or by way of prevention, to keep off the returns of the Gout, *Spigelius* commends this Medicine, and calls it his Podagrical Antidote.

R. *Troch. de viper. fol. centaur. min. chamæpith. beton. ana* ℥j. *chamædr. ℥ii. rad. gentian. aristoloch. rotund. pæon. bardan. ana* ℥j. *baccar. lauri, myrrhæ, rhabarb. elect. spic. nard. ana* ℥ss. *caryophyl. ʒii. in pulverem redacta, servantur in vitro, vel cum melle despumato misceantur.*

Of the Powder he appoints a scruple for a Dose, of the *Electuary* a dram; and a draught of warm water to be drunk after it. The Medicine is good; but warm water to be taken after, I cannot so well comply with that. For my own Patients, I give an Extract designed for this purpose, and sometimes a Diet-drink, which strengthens the digestions, and prevents the *saline serosity* from generation, and are preservatives of value to those that have experienced them.

Now as concerning the *curability* and *incurability* of the Gout, we will make some inquiry into this matter, because 'tis acknowledged by all to be of difficult Cure; and by many 'tis accounted

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counted an incurable disease : this opinion being fixed in the minds of most people so afflicted , and despairing of help , at least of a Cure, they provide only to abide the *pain*, and resolve to be contented with their condition , as thinking there is no other remedy but *patience* , because they see few or none cured.

But I cannot consent with this opinion , that the *Gout* is an incurable disease , knowing the contrary by experience ; although I must confess, such Cures are rarely performed : and the reason why ; not so much from the impossibility of the thing to be done , as from the *intractability* of the persons to be governed and ruled , and the circumstances under which some persons lye.

For the *younger* sort being the most curable, or in the best capacity for it ; they will not be confined to such Methods, Rules, and abstinence for such a time as is requisite for this Cure ; but indulge themselves in the liberty of their enjoyments, and pleasures of sense, doing those things which are very opposite and injurious to their condition of body ; whereby they set on and procure the returns of this disease, notwithstanding some former good means used , hath taken good effect , and checkt the obstinacy of this *Malady* with hopes of prevailing.

For the *old* and feeble sort , they have not that assistance of Nature to cooperate with the means ; besides , the continuance and long impressions of this disease , habitually indisposing,
perver-

perverting, and enfeebling the parts affected, both *mandant* and *recipient*; which makes the perfect restoration of such, of much greater difficulty, and very rarely effected.

To these we may add, that for the most part, the *Gout* takes up its quarters with the rich and those that live plentifully, having all things for pleasure, ease and delight.

Dormit & in pluma purpureaq; thoro: and the people thus stated cannot, at least they will not restrain their appetites or cross their inclinations, and be observant of, and obedient to the Rules required; abstaining from the things they love and delight in; but on the contrary, do gratify their senses, although they suffer for it afterwards: and finding the disease not to be *mortal*, they chuse rather to undergo pain for a time, than deny themselves the pleasures of their life as they account: and therefore it is, that the poor are seldom troubled with the *Gout*, because they fare hardly, and labour much, both which are great enemies to and opposers of the *Gout*, giving no place for reception thereof, or long abroad at least, if it chance to lodge there: hence this disease was called by some *Ἰσχυρὸς νόσος*.

Thus you see, and more at large might be amplified; how the *Gout* becomes so triumphant and invincible, having gained the character of *Opprobrium Medicorum*, as able to baffle all the designs of Physicians and their Remedies.

But amongst the vain Opinions that are raised
concer-

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concerning the *Gout*; this is not the least that alienates the minds of most people from their reason, and checks their endeavors for help: *viz.* that it is dangerous to tamper or provoke this *Lion*, because some have miscarried, and died by trying with uncertain means and hazardous Medicines; who otherwise probably might have lived a long time, the disease commonly not being mortal, but a lingering and torturing sickness. And farther, it was related to me, that a great person in this *Kingdom*, a few years since (now dead) being often and much afflicted with the *Gout*, his *Physicians* told him, that the *Gout* kept him alive; and if he were cured thereof, he would dye soon after.

To obviate these objections I answer, and part hereof I grant, that some have dyed by their endeavours for Cure; and this not so strange, for the like may be said in all other diseases, that some have dyed by their *Physicians*, or such as they intrusted as *Physicians*, and not solely or chiefly by their disease: Examples we have had in the most, if not all diseases, the most curable and facile to be dealt with: so that by unskilful men, improper courses or designments, and by bad Medicines, or casualties happening by the *Patients* folly or their Tenders, many have dyed in the prime and strength of their age, by endeavoring for Cure in Diseases not mortal nor of sudden danger in their own Nature, and amongst those the *Gout* may be reckoned: So that if you will plead for no
Phyſick,

Physick, no *tampering* (as you call it) with the *Gout*, by the same argument you may abandon Physick in all other sicknesses; for the adventure is equal, and the security depends only upon the judgment and ability of the Physician, and no more hazard in this disease than in another. I say therefore, in case of the *Gout*, as also in all other diseases, if you will securely proceed; take a knowing man well grounded in the Theory, and through paced in the Practice of this *Art*; having a frequent experience in the progress and Cure of Diseases, and a critical Observer of the *Gout* in particular; this man you may as freely trust, and safely yield obedience to in managing a Cure for the *Gout*, as you can do to other *Physicians*, in all cases whatsoever.

Now as for those *Physicians* (if there be any such so ignorant or fallacious) that alledge the *Gout* to be any way a Preservative of Life, and pretend not to cure it for that cause, I must tell them plainly; *first*, that this is only a *pretence* to palliate their inability, and a crafty evasion to shift off the censure that may fall upon them, for not curing what they ought, and would willingly do if they could.

Secondly, To shew the pretence is erroneous and void of truth; we will search the *Gout* and see if there be any thing in it, or appertaining to it, that is a Preservative of mans life, or conducing to his health and a sound state of being.

In the *Gout* there is no pleasure nor recreation either of *Mind* or *Body*; both which are promoters of *Health*, and consequently prolongers of *Life*: but on the contrary, the *Gout* is attended with a sedentary inactive confinement, melancholy, pain, watching, and unseasonable sleep, (the consequents and effects of which are debility of all the faculties and enervation of strength) which as these continue longer or more violent, and return more frequently and often, by so much more is the *Patient* damaged, both for the present and the future; and rendered more infirm and liable to the decays of Nature.

But perhaps you will say, this *serosity* and sharp pungent humor, falling into an ignoble part, and far off from the *Vitals*, is much better and safer there than to wander up and down the body which (as it hath happened sometimes) may invade a principal part, and there threaten or cause death: therefore so long as this humor hath a recourse to the *Joints*, and is not turned off from that current, the *Patient* is not in such great danger as otherwise.

To this I reply, That true it is, if there were a necessity that this *Tartarous* gouty humor must invade one part or other; better it is that it passeth a safer way, and lodgeth in an ignoble and remote part; and better it is that the *Physician* does nothing than do hurt, or run a hazardous course. If he cannot eradicate this morbid matter, stop the spring and fountain from

from whence it does arise, and where it is generated: or this being too hard and difficult a work, if he cannot derive the stream and issue thereof to the vents and outlets that Nature hath appointed and framed for a discharge of superfluous and degenerate humors, but lets them have their course (because not mortal) to the constant trouble and damage of this or that part in particular, and consequently makes the whole to suffer *sympathically* and by consent: such a *Physician* either hath not a true notion of this disease the *Gout*, or else he wants commanding Medicines elaborated by his own hands, exquisite and effectual to answer the indications that this disease and causes thereof will put him upon for relief of the *Patient*: but to pretend that this disease must not be cured, because it spends or employs the humor in a safe way (so called) is muchwat alike (but very unlike a good *Physician*) as to suffer a man to continue languishing in a Loosness or Vomiting, because it dischargeth some peccant stimulating matter: but in this case, as also in that of the *Gout*, the extravagancy and irritation of noxious humors are to be checkt, collected and sent forth by good Medicines, in a placid gentle way, through convenient ductures and outlets, and not let to continue in a detrimental *extravagant* course.

Now concerning the *curability* and *incurability* of the *Gout*, I do owne that some are much more capable of Cure than others, by the nature and condition of their bodies: and some

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are not curable, as age and other circumstances have reduced them to an incurable state: yet I say, in the worst of cases there are *mitigations* and helps, that check and tame the fierceness of the disease, render it more tolerable and easie: and such *Prophylactics* or Preventives there are (with a due Regimen of life) that will keep off the frequency, and retard the returns of this painful Malady.

Thus much concerning the *Gout* fixed, or constant to a part: it remains that I deliver my thoughts and experience touching the *Rheumatism* or running Gout, so called; because it shifts from part to part, invading not only the Joynts, but also the *membranosum Genus*, the Membranes both of the Muscles, *Viscera*, and Bones.

Hence it is, that sometimes these pains are external in the *Muscles* and habit of the Body: sometimes internal, when the *Viscera* are assaulted; as the *Lungs*, *Liver*, *Intestines*, *Spleen*, &c. sometimes these pains affect the *Bones*, by pricking the *Periosteum*, that Membrane which covers and enwraps the bone.

Some complain of their *Arms*, others of their *Shoulder-blades*; some the *Back*, others or at other times the *Breast*; sometimes the *Thighs*, and sometimes the *Legs*; the humor shifting and moving from one place to another: and this upon changes of the weather, turning of the wind, and seasons of the year; these pains do go and come, afflicting more or less: and yet

no swelling, *Inflammation*, or outward appearance upon the part grieved.

These pains continuing, or frequently infesting, do debilitate and disable the parts affected; insomuch that some go very weakly, others use their arms but with little strength, and some the use of their *Limbs* almost taken away.

The material and continent cause of these fugitive and vagrant *pains*, is the same or of the same nature with the former *Arthritis* or Joynt-Gout: *viz.* a tartarous or sharp penetrating *serosity* that molests these several parts: and to confirm that this is a *serous* or watry humor; it makes no Tumor, nor suppurates, which were it of another kind it would: besides, the mobility and fluctuating nature thereof, argues it to be of that kind: and farther *à juvantibus* we may most rationally conclude so; Transpiration and copious emission of Urine, and also Purgation that evacuates *serous* humors, gives allay and sedation to these fleeting pains.

But why this should be so moveable, and changing its place, the other fixed or constant to a part, since one and the same humoral matter is the cause of both; the reason hereof may be this: from abundance of the humor, and for want of vent; one way not being sufficient to receive and spend it, Nature is necessitated to find out and break through several ways; that is, by forcing the *Anastomoses*, and opening the *terminations* of the Veins, spewing forth this *punging* irritating humor into several parts: and

being an unwelcome guest, hostile and troublesome, the *Archæus* or *vital* principle defending its Territories (*quoad posse*) and unwilling to give it harbour, transmits it from place to place.

This *Rheumatism* and erratic pains depending upon the same humoral cause with the *Gout*, will require muchwhat the same method and Medicines for Cure: as also such *Prophylactics* that are proper and fit by way of prevention for the other, may here be used with the like advantage; and therefore it is not needful to point out a particular *methodus medendi*, or peculiar Medicines: only the *Topical* Medicines are not of such use here as in the *Joynt-Gout*.

And now I have gone through and briefly inquired into the most, and most considerable pains incident to several and principal parts of mans *Body*: it remains now (as is proposed and promised in the front of this Work) that I proceed on to the next Stage; *viz. Inflammations*, and there observe what is most remarkable, and most profitable to be taken notice of.

Inflammations *internal*.

BY the common order of causation, *Pain* precedes, *Inflammation* follows. To illustrate and set forth the nature of *Inflammations* more evidently, and to avoid confusion and intanglement in our Discourse, we shall distribute

bute our matter, and place it distinctly under these following Heads.

First, What the word imports, and congruous signification with the nature thereof.

Secondly, What Parts of the Body *Inflammations* do usually possess.

Thirdly, The occasional *Matter* that provokes and sets forward these *Inflammations*.

Fourthly, How they arise, and from what *Principle* or *Efficient* they are caused.

Fifthly, The *Use* and *Practice* that ariseth naturally from the preceding Doctrine.

The word *Inflammatio* used in the Latine, in the Greek is *φλεγμὴν* and *φλόγῳσις*, from *φλέγω* *uro*, to burn or inflame: in both Languages signifying some extraordinary and preternatural heat kindled and begun in some part of the Body: and in the common acceptation of a *Phlegmon* or *Inflammation*, is understood thereby a hot *Tumor* arising from blood,

But although *Inflammations* are reckoned among the Tumors, and so accounted by most Practisers: yet I must take leave to divide *Inflammations* from *Tumors*, and distinguish them apart, as properly so; for commonly they are separate, although oftentimes conjunct: and the denomination was given *à calore*, not *à tumore*.

By *Inflammation* therefore I understand here only a preternatural or extraordinary heat begun in any part, (as the *Etymon* of the word imports) before a *Tumor* be raised; but by time

and continuance *Inflammation* or great heat does attract matter and forms a *Tumor*, and then *Inflammation* and *Tumor* are coupled or complicated together : for as we plainly find external parts to burn or feel very hot, and to look red ; you say then, the part is inflamed, although no *Tumor* or swelling appear ; so is it internally, the part is fiery, hot or inflamed, before a fluxion of *blood* arrive thither to throng the part and raise a *Tumor* ; so that there are *Inflammations* without *Tumors*, and *Inflammations* conjoined with *Tumors* ; and here I make *Inflammation* a distinct Classis, and to be a gradation or step towards a *Tumor*, which probably may follow, if not prevented, as sometimes it doth.

And here it is worth our inquiry, to know the reasons why some *Inflammations* produce *Tumors*, and some go off without forming a *Tumor* : and this is caused from the difference of the parts affected ; and the copious *influx*, and contumacy of the *material* cause to be removed ; from the efficacy of *means* timely used, or the strength of *Nature* to relieve her self.

Secondly, We are to take notice what parts of the Body are subject to *Inflammations* ; and they are the *muscular* flesh, the *Membranes*, the *Parenchyma* of the *Viscera*, and the *Glandula's* : hence it is, that *Inflammations* as they are seated in divers parts of the Body, so are they called by distinguishing names, from the part affected : as *Phrenitis*, an inflammation of the
Meninges

Meninges or Membranes of the Brain.

Ophthalmia of the Eye.

Parotis of the Glandule near the Ear.

Peripneumonia of the Lungs.

Pleuritis of the *Pleura*.

Nephritis of the Kidneys.

Angina of the Muscles of the Throat.

Now from the part affected you are to observe, that any member the more *nervous* it is, by so much the *pain* is greater; and by how much the part is more *fleshy*, by so much the sooner the *Inflammation* comes to a resolution, or collection of matter.

In the third place we come to remark the *conjunct* and material causes of *Inflammations*: and they are generated either by *obstruction*, or *extravasation*.

Obstruction begets *Inflammation* when the fluid liquors in the Vessels are denied their free motion and transition: and this happens when these Juices are coagulated, gross or thick, and thereby become *stagnant* in the smaller Vessels. Or by *compression*, when the Vessels are stopt by some adjacent part *tumified* or extended beyond its common bounds. Or by an *influx* of blood rushing into some smaller Vessels, from whence there is not a ready transmission and passage: for the *venal* and *arterial* Pipes entring into a member are commonly large, but grow smaller, as they go deeper in, and their ramifications very minute, that they may soon be overcharged by a turgid blood, more than ordinarily fermenting and flowing in.

Thus

Thus great *pain* from what cause soever may introduce *Inflammation*, by drawing a flux of humors to a part or member, from whence they cannot readily retire or move forwards. And here you may see how *Contusions*, *Luxations*, *Fractures*, &c. do occasion *Inflammations*, if not prevented by care and skill with exquisite good means.

By *extravasation* sometimes *Inflammations* do arise; that is, when either by plenitude and fulness, or heat and thinness of blood, the terminations or mouths of the Veins are opened, and some effusion made; which then being out of its proper place does degenerate and corrupt, and affords matter for *Inflammation*. Thus by *Ruptures*, *Punctures* and *Wounds*, extravasated blood is the material cause of *Inflammations*.

Fourthly; but matter alone cannot produce an *Inflammation* (nor any other disease) being inactive and a dead thing of it self, except some vital Agent works upon it, forms and moves it: who or what this Agent is, we are to inquire farther.

Since then *Inflammation* is not procured by *matter* alone, nor can it exist only by *matter*, there must then be an internal *efficient* and movent Principle joyned with this *matter*, that fabricates and generates of this matter an *Inflammation*.

But understand me rightly: I do not mean that this matter takes fire and is kindled, as if it were a *sulphurous* and combustible matter, and so

so cause an *Inflammation* or scorching heat, no such thing: but this *morbific* hostile matter stirs up the vital heat by way of irritation, provokes the vital principle to estuate and wax hot: for from hence does all heat *emanare*, stream, and issue forth; whether it be a temperate and natural warmth, or a preternatural and inflaming heat, both proceed from this fountain: So that hereby you must distinguish between the occasional matter of *Inflammations*, and the internal efficient that does *excandescere & inflammare*. This inflaming heat ariseth from a principle much different from the *materia morbilica occasionalis*: this great heat does not rise out of the morbilic matter inflamed, but from the vital *Principle* incensed.

A *Stone* in the *Kidneys* by raising great pain, may cause an *Inflammation* there; and this stone is the occasional and material cause thereof; but none can think that this contains fire in it, or is capable to be inflamed, or to communicate any heat to the containing parts, save only what it hath received from the vital heat residing in the body. And thus it is in all other cases of *Inflammation*, in any part of the body, from what cause soever.

This vital *Principle* is seated in every member of the body, and does preside as Governor; and not only for defence thereof, but also to move and act in it so, as no vital office or function can be performed without the assistance and power of this internal invisible *Agent*; nor is there

there any heat, but what ariseth from hence : And this is that which *Hippocrates* calls the *impetum faciens*; *Helmont* the *Archæus*, which I chuse rather to call the vital *Principle*.

When any thing happens out of order in the body, a Vessel obstructed, or some liquor extravasated, or what else that may disturb and interrupt any member in its office ; soon the vital Principle is affected and concerned therein ; and if the matter be considerable and contumacious, pain ariseth there : and this pain is the suffering and anguish of the vital *Regent*, struggling to resist the injury, and labouring to remove the impediment : hence the *Inflammation* and preternatural heat arising from this vital power.

Fifthly, and in the last place, from the doctrine preceding we are to make some observations that may be useful for guidance in *Practice*, and to remark some pernicious errors that pass undiscerned.

And first, here you must take notice of the affinity between *Inflammations* and *Feavers*: that most *Feavers* do arise from *Inflammations* of some particular part, and are the off-spring from thence, or springing from that root. For the *quod sit* Practice does affirm it ; for rarely you shall meet with any considerable *Feaver*, but some particular part is chiefly complained of ; and as the grief or pain does abate there, the *Feaver* is remiss and slackens also.

Secondly, you are to note, that *Feavers* are erroneously defined, à calore præter naturam in corde

corde accenso: assigning the Heart to be the *Focus* where febrile heat is first kindled, and from whence it is maintained; when almost in any other part of the body, if an inflammation happen there, a *Feaver* will certainly follow, taking its rise from *thence*, not from the *Heart*: so that the Heart then suffers *sympathically* by consent, not *idiopathically* and originally. And whereas I said almost any part, intimating thereby, that a slight *Inflammation* may be in the small and capillary Veins of short continuance, which may not communicate a *Feaver* to the whole body: and such inflammations we see externally planted sometimes, the capillary Veins of the *Cutis* being affected *calore & rubore*, which either spontaneously vanish, or soon yield to some outward application only.

Thirdly, From the denominations of *Feaver* and *Inflammation*, you may observe the parity or near relation they have to each other; for from the *Etymon* of the words, they seem to import muchwhat the same thing, denoting only an extraordinary heat, πυρελὸς from πῦρ *ignis*, and in the Latine *Febris*, à *ferveo*: φλόγῳσις *inflammatio*, from φλέγω *uro*.

Fourthly, We shall not depend upon *Ety-mologies*, which are allegorical, and often strained; but inquire into the nature and extent of each, and know what is meant by the one and the other, and then what difference between them. *Feavers* are known, and defined by preternatural heat and effervescency through the whole

whole body. *Inflammation* is a preternatural heat of a particular part. Hence we remark, that Feavers are general *Inflammations* or inflammations dilated : *Inflammations* particular *Feavers* of a member ; thus differing in extent and latitude : but withal observe the order of causation ; Inflammation precedes and lays the foundation , in this or that part there is the *fomes* and *minera morbi* : a Feaver follows upon the whole body , caused only by consent from thence and condolency.

Now if all or most *Inflammations* cause Feavers, and *Inflammations* so frequent, as being the certain consequents of great pain , then two things are to be noted : first, that upon the appearance or discovery of a *Feaver*, you may suspect an *Inflammation* couched under it , from whence as the spring , this *Feaver* does arise. Secondly , that the Cure of most *Feavers* ought to be designed and managed so , as respecting and aiming chiefly at a particular Inflammation, upon which the Feaver does depend : *sublata causâ*---- and when a *Feaver* ariseth upon this account (as for the most part it doth) then little regard is to be had to the general Feaver , but the stress of Cure lyes upon removing the occasional and material causes of *Pain* and *Inflammation* in the particular part, the foundation of all the rest , which being removed, the depending *Feaver* falls of course.

Thus all our Discourse tends to make a true discovery of causes ; that when preternatural heat

heat does arise in the body and beget a *Feaver*; we may know, not only what to call it, but also what to do, by levelling at the right mark.

But by the way I must tell you also, how a *Feaver* sometimes does arise, and not from *Inflammation* of a pained part: and that is when some *heterogeneous* discordant matter, or some malign and venenate *Miasm* is mingled or got into the blood; Nature, which is the vital Principle, raiseth a preternatural fermentation and febrile effervescency in the mass of blood, for a purification and separation of this exotic mixture; and admits of no sedation and rest until that work be finished.

Fifthly, and from hence you are to be warned of the dangerous and common Practice in *Feavers*, by *Juleps*, *Barley-water* and other such like cooling Medicines used to allay the heat; from a great mistake of the rise of *Feavers*, and from whence this heat does assurge: for, whether the *Feaver* does depend upon a particular inflamed part; or a general fermentation of the blood for purification; in both cases of *Feavers*, such cooling Medicines are pernicious, and have killed thousands: for by insisting so much upon them, and aiming to suppress the *Feaver* by Coolers, (which is not possible to be done) thus trifling the time away, the opportunity of curing is lost, and the disease prevails.

The error of these cooling Medicines is apparent from the insuccess thereof; for never was the thirst of a sick person satisfied by a *Julep*;

lep; but a draught of good drink, such as the *Patient's* stomach calls for, that is acceptable and refreshing: so that I say, *Juleps* are but cold comfort to a feaverish sick man; for these cold Medicines imposed upon the sick, are so far from assisting Nature to perform the work she is struggling about, that they nauseate and flat the stomach (which should invigorate the other faculties) damp the power of Nature contending, and leave her languishing for refreshment coveted in her natural common drink.

What advantage can there be in a *Julep* to take off, or any way contribute to the removal of any matter that is the cause of *Inflammation* in the *Liver, Spleen, Kidneys, Mesentery, Pleura, &c.* any part of the body? truly none; but that is not all; for besides the doing no good, it does much mischief, in suppressing the fortitude of Nature, and cheating the poor Patient of that desired common assistance by drink that would be comfortable. But no more of this, because I have enlarged upon this point *pag. 27, 28, 29, 30.* yet it falls in here, necessarily to be taken notice of; because *Inflammations* always introduce *Feavers*, which Feaver being most obvious and apparent, ingrosseth all endeavours for allaying that general and expanded heat; but they go the wrong way to work, even preposterously, beginning at the wrong end.

But now to inform what is necessary to be done, when a pained inflamed part requires help, take these directions in general, which will
be

be advantageous in most, if not all particular cases.

First, Examine and consider the nature of the part inflamed, being the part primarily affected, the foundation of this disturbance; from whose peculiar structure and fabrication, as also from its office, you will find what are the usual impediments that molest and disturb such a part, and how it becomes liable thereto.

Secondly, You are to consider what way this matter is to be carried off (if it be humoral) and by what means: adapting such Remedies suitable to the condition of the part affected, and proper for the removal of such a morbid cause.

Thirdly, The Feaver that ariseth from, and depends upon this *Inflammation*, is not to bias you, or take you off from any thing necessary to be done, in order to reduce the *part* primarily affected, but prosecute directly there, and regard not the *Feaver*; for as you get advantage in relieving the *part* grieved, you will find the *Feaver* to decrease, and totally vanish when that is restored. And to tell you plainly, I know nothing you can do advantageous for the part inflamed, that may be injurious upon account of the Feaver, if the Feaver were independent, and had no relation to the other.

Fourthly, If blood be the primary cause, or otherwise aggravating through plenitude, make a depletion: thereby the *Circulation* will be more free, *turgency* abated, and *fluxion* preven-

ted, at least retracted ; for if the cause be in the *Veins* or *Arteries*, most necessary it is to be done; for commonly then a plethory, grossness, or coagulation gave the occasion of this grief; but if it be an acrid *serosity* ; that lanceth and irritates the tender part, *Phlebotomy* may draw off, and make a diversion for a time , until other good means can be administered, to eradicate or blunt the sharpness of its acidity.

Fifthly, Set open the vents and outlets which Nature hath framed, and make evacuation , to abate *fulness*, and remove *filthiness* in the whole body ; thereby you will prevent or allay the turgency of ill humors that are apt to ferment and move upon this disorder ; and cut off a supply of morbid matter that may resort to the part pained, or raise a new disturbance in other parts of the body.

Here you must procure , and prosecute this intention with *Balsamic Abstersives*, the true *Cathartics*, (not venenous Laxatives the common reputed Purgatives) and cleanse the lower region of the body ; whereby also you will subduct and draw away from the parts affected. The grosser matter being thus removed and carried off sufficiently, the remainder discharge by *Transpiration*, making an apertion of the Pores, and setting open those imperceptible vents, by the use of effectual and choice *Diaphoretics*, thereby to attenuate, rarifie, and scatter.

For outward *Inflammations* Topical Medicines are applied to the part, *Fomentations*, *Cataplasms*,
Unguents,

*Unguent*s, &c. to appease and allay : but our internal cases do not admit of such applications : therefore we are to design otherwise, and adapt such internal Medicines, and by such operations, as may reach the *morbous* matter to remove and transmit it : yet when an *Inflammation* is seated near the superficies or extern parts of the body, as the *Pleura*, the gibbous part of the Liver, and such like ; especially if a Tumor conjoyned do appear also, or any visible extension, then local Medicines may be of good use, and contribute towards a Cure.

But here by way of caution take notice, That no refrigerating or reperiussing application be made , to repel and drive back from the part pained ; for this may prove of dangerous consequence, as the imprudent adventures of some in this manner have left sad memento's , to forbid the like practice.

But some may say, How shall we know when any internal part is inflamed ; because neither the eye nor the hand can reach there to discover the disease ? Yes very well ; for great *pain* and anguish continuing in any secret internal part, and raising a *febrile* heat in the whole body, does as certainly declare that part to be inflamed (in the sense before expressed) as any outward signs can manifest , where seeing and handling does or can adjudge the case.

Sixthly ; and in the last place ; because *Inflammations* do arise from , and depend much upon the continuance of *pain* ; therefore *Anodynes*

dynes or allayers of pain may be profitable at some times, and in some cases; but warily to be used, and the times nicely to be distinguished and chosen, as not to displace or put by a curing Medicine: for no *Opiate* or *Anodyne* is *curative*, but *palliative*, and for allaying the extremity of pain, and to give rest only: for pain keeping the sick from natural and wonted rest, does bring great weakness and lassitude of spirits. Since pain therefore and long watching enervates and debilitates Nature greatly; on the contrary, sleep refresheth and restores much, that the enfeebled Patient then may gain respite from pain, and refreshment by rest; when the sick is in danger, as being tyred out for want of ease and sleep, then the case calls for *Anodynes*, and ought to be made use of.

But because *Opiates* and *Anodynes* do not remove the morbidic cause, therefore they are not to be insisted upon, or relied on as curing means; but they are to be used in cases of extremity for mitigation and ease; and at such due times as not to hinder the operation of any curative Remedy.

Tumors

Tumors Internal, Scirrhou, Apostemate, and Cancerous.

Tumors may fitly be placed next to *Inflammations*, because *Inflammations* are the foundation or occasion of many *Tumors*; though *Tumors* sometimes arise not procured or caused by *Inflammation* preceding: but most frequently *Tumors* grow up and take their rise from pain; and where pain is, *Inflammation* (in our sense) follows of course: and there is much reason for it, because pain and heat does arise from one and the same principle, as already set forth: and when this painful inflaming heat continues, you may rationally expect a *Tumor* (by fluxion) to follow; if not prevented by good means, to pluck out the *spina morbifica* the thorn in the flesh; or Nature so powerful and prevalent to free her self.

Tumors have their denomination à *tumes* to swell; and the Greek word *ογκος* signifies protuberance or expansion: so that by *Tumor* you may understand a part enlarged, and increased in bigness preternaturally: for natural extensions are not to be called *Tumors*: as the dugs or belly of a woman with child, though they be extended bigger than ordinary, yet it is natural, or by the course of Nature.

You are not to expect here a *Chirurgical* Treatise of *Tumors*, as if the Cures hereof were to be

performed by *manual* operation: but I shall shew you some differences of external Tumors that require such management, only that you may the better apprehend and judge of internal; for as external Tumors do arise from internal matter, and present outwards; so hidden internal Tumors are formed of the like matter, and from such occasions muchwhat as the external, save only some outward injuries that may affect the superficial, and not the interior parts: as *Contusion, Scalding, Cupping, Vesicatories, &c.*

Galen in his Book *de Tumoribus*, reckoning up all sorts of Tumors as he supposed, gives in the account to be sixty one: but *Ingrassias* in his Survey of Tumors afterwards, adds an hundred sixty five more to them, and gives particular names: but examining the reason hereof we find the advance of number, not any way to promote their Cures, but makes confusion and perplexity in *Practice*: for this variety is not from any real difference in their nature, but from some accidental difference between them in appearance; as *magnitude, figure, situation, &c.* so that the same in kind is repeated by another name: therefore this vast number will admit of a great abatement, and the designment of their Cures much easier and better managed, when all are reduced under a few general heads, respecting their continent matter, and many joyned together under one name by the union and similitude of their nature.

The difference therefore of Tumors arising
from

from the variety of their material causes, and the *modus generandi*, are chiefly to be lookt at; for from thence is the designment of Cures more especially bottomed; but with some respect to the seat or part affected.

The general division of Tumors from their material causes (in the common received *Practice*) is sixfold.

First, from *Blood*, which makes a *Phlegmon*.

Second, from *Choler*, which generates an *Erysipelas*.

Third, from *Phlegm*, which begets an *Oedema*.

Fourth, from *Melancholy*, which makes a *Scirrhus*.

Fifth, from a *serous* or watry humor, which generates watry Tumors, as *Hydrocephalus*.

Sixth, from *Flatulency*, and this Tumor is called *Emphysema*, *Inflatio*, *Tumor flatulentus*.

Under these six general Heads are comprised also several other subdivisions: as *first*, such as arise from the degenerate and depraved condition of these simple and single humors: *secondly*, such as spring from the composition and mixture of the simple humors one with another.

How far I can comply with this specious Doctrine, whether it be not more notional than practical, and my exceptions against it, I shall not declare now, in regard time, and the intended conciseness of this Work, will not give me leave to establish my own opinion, and judgment dissenting in this matter; nor is it necessary to lay open the intricacy of our design in

hand, by debating and controverting this Doctrine, which relates chiefly to external Tumors and *Chirurgical Practice*.

And although internal Tumors are generated of the same matter as external; yet all these differences (supposed to be true) cannot so nicely and certainly be adjudged and determined; but *indications* from thence must be more general and at large, for dislodging, cleansing, and carrying off any such material cause, that infests and tumifies a member or part.

Since therefore internal Tumors do not present themselves to the eye, for a more certain and exact knowledge; we are to make judgment of them and determine, from the fabrication and office of the part affected and complaining; which gives some intimation thereof, what *Succus*, or depraved and preternatural matter may reside there: as also from the general constitution and disposition of the body antecedently disposing thereto: for that *Cacoehy-my* which is predominant in the body, is most likely to be the cause or matter of the hidden Tumor, except some other circumstances and probabilities do mainly suggest another *morbus* matter.

From the nature and condition of the part affected, you may sometimes conclude the Tumor there to be of such a kind: as when the left *Hypochonder* is preternaturally extended, you may rationally judge *flatulency* and melancholy *feculency* to be the matter and cause thereof.

From

From the signals of a ferous *Cacochymy*, or abounding ferosity in the body; you may conclude, if swelled legs or feet do happen hereupon, the Tumor is *hydropic*.

For the *modus generandi*, and the occasional causes of internal Tumors, they may be reduced to these five.

1. *Attraction*. 2. *Transmission*. 3. *Congestion*.
4. *Obstruction*. 5. *Extravasation*.

First, By *Attraction* humors are brought to any part, and there accumulated: and thus pain increasing heat preternaturally (like a *Ventose* or a *Vesicatory*) does attract from the adjacent parts, and procures a confluence of humors to the part pained, and thereby forms a *Tumor*.

Now if *pain* be so apt to beget a *conflux*, and consequently a *Tumor*; then you ought to beware, and often suspect such a product; for as much as pains are very frequent in most diseases, as before proved. Then also remember upon a cessation of pain, there ought to be care taken by proper means, for the recession and dissipation of confluxed matter: and not imagine upon a presumption, that when the *pain* is gone, all is gone, and the *Patient* secure.

Secondly, *Transmission* procures a *Tumor*, when the expulsive faculty of some parts is vigorous and strong to send off any excrementitious matter, and deposite it upon a weaker, which being not able to expel, it lodgeth there and generates a *Tumor*. Thus the principal and more noble parts have a natural *robor* and fortitude,

titude, to send off their superfluous and noxious matter, and transmit it to the inferior and ignoble.

Now there are some parts that are weak by *Nature*; and some by *Accident*.

By *Nature* those are weak that are designed ministerial and subservient, and therefore liable to transmitted matter from their superiors: thus the *Glandules* are all weak parts, lax and spongy, apt to receive and imbibe: hence it is that the *Heart* transmits to the *Glandules* in the *Armpits*; the *Brain* behind the *Ears*; the *Liver* to the *Groins*; and the *Glandules* of the *Mesentery* are very apt to tumefie, and are the latent causes of some difficult abstruse diseases. The *Skin* also is a weak part and general *Emunctory* for the whole body, and therefore many *Eruptions* and *Tumors* are there visible.

By *Accident* some parts are weak; as when by a disease, inordinate living, or casual injury; some particular part, though strong by nature and original formation, may be vitiated, debilitated and made feeble.

Thirdly, By *Congestion* Tumors are sometimes bred; as when a part or member does not transmute the alimentary supply into its own substance, but suffers it to degenerate there, and accumulate into a *Tumor*: or else the expulsive faculty may be weak, and not able to send off the excrementitious part, which remaining there may produce the like: or sometimes the fault may be in the nutritious supply, not being capable

pable of a good transmutation, as in *cacochymical* and foul bodies.

Sometimes the *relics* of an acute sickness not well cured, by *congestion* in this or that part does afford matter to beget internal Tumors; and therefore after the small Pox, Agues, Fevers, &c. purgation and cleansing ought well to be performed, else *chronic* diseases commonly do succeed them, from peccant matter lodged here or there: and therefore upon such neglects or insufficient performance thereof, we find commonly *big* and hard Bellies, or swell'd Legs; some part or other pained, tumified, or hard. And these are the effects of imperfect Cures, when the morbid matter is only abated, and the storm laid; but the remainder accumulates by collection and congestion, to produce a disease of another nature.

Fourthly, By *Obstruction* Tumors or extensions are begotten; for when the current is stopt in any Vessel, and by the Law of Circulation the continent *Succus* or humor, is still moving forwards to this place obstructed; the Vessel or containing part must needs *tumifie* and swell, as not able to receive and contain the additional flowing matter in its former dimensions. And this is apparent to the eye in *external* parts, which must needs prove the *internal*: for a strait *Ligature* upon the Arm or Leg, does cause the part below the binding to swell: and for this reason; because the Vessels are obstructed by *compression*, that the blood cannot circulate and move

move on. And the case is the like in effect, when obstruction of a Vessel is made from *coagulation*, *incrassation* or grossness, or any *concreted* matter within the ducture or cavity, to obstruct and stop the stream.

Now obstructions are generally acknowledged to be the frequent causes of many or most diseases: and few cases do present in Practice, but obstruction bears a part, and sometimes the solitary cause; or else obstruction is very much wronged; for nothing more frequent in *Physicians* mouths than obstructions; and yet nothing more seldom mentioned than an internal Tumor: from whence we may well conclude, it is rarely thought on or not at all suspected. But *obstructions* are so familiar and frequent in discourse, that they are little accounted of, at least not thought to be of any *dangerous* consequence: not considering that this *obstruction* may, and does often (being contumacious) beget a *Tumor*; and this Tumor may cause a long and difficult, or dangerous acute sickness, if not mortal: for the progress may go on still, from *Tumor* to *Apostem* or suppuration, and then plant an *Ulcer* there: or this Tumor may become *scirrhus* and hard; then perhaps *cancerous*, *gangrened*, and then you know what follows next, mortification.

From hence it is very reasonable to judge of the *series* and course of many *chronic*, or long lingering diseases; as also of the acute mortal sicknesses; most of which do make their progress

gress by these *stages*, have these commutations and transition; at last their *fatal* termination, because this latent train of diseases was not suspected.

But all this while the *Feaver* was the disease feared, and vainly endeavoured against; and the *Patient* is said to dye of a *Feaver*, because a *Feaver* did attend (the life did estuate and was disquieted) in the whole course, and every transition of the sickness, even to death.

Fifthly, By *Extravasation* a *Tumor* is sometimes generated: as when the Vessels are replete and full causing *tension*; by thinness, heat, and sharpness of blood; or a preternatural and turgid fermentation distending the Vessels: the mouths of the Veins are hereby opened sometimes, and a *stillicidium* or effusion of the contained liquor procured; which being lodged out of its proper place, does corrupt, inflame, and produce a *Tumor*.

Now concerning the signs of an internal *Tumor*, they are not only extension and increase of magnitude; which is apparent when it makes a *protuberance* upon the superficies: but also a fixed heaviness or hardness; or pain upon pressure with the hand, does give great suspicion and probable conjecture of a latent internal *Tumor* lying deep and obscure; especially, and by way of confirmation, when the preceding causes apt to generate *Tumors*, do concur to strengthen the probability.

But before we conclude this Discourse of
Tumors;

Tumors ; something more is to be said , and that touching a *Scirrhus* and *Apoſtem* , which are comprehended under *Tumors* ; and do ſignifie only the diſtinct and ſpecial condition thereof : and here we have occaſion to take notice of the different ſtate of *Tumors*, and their way of *reſolution*, *fixation*, or *translation*.

Tumors do either wear away and ſpend by *diſcuſſion* and tranſpiration : or they recede by a *translation* of matter into another part : or they *apoſtemate* and come to ſuppuration : or they indurate and become *ſcirrhus* : or they *tabeſce* and corrupt the part where they are ſeated.

Diſcuſſion of a *Tumor* is the beſt that can be expected ; and this ought chiefly to be aimed at in Practice : the next to be hoped for and endeavoured , is *diſlodging* of it and removal from a noble to an ignoble part ; or to ſuch place where means can better be uſed, and more apt for reſeſſion, or egreſſion of the continent material cauſe : but if the *Tumor apoſtemates*, the danger is greater or leſs, according to the nature and condition of the member or part : if it *indurates* , the danger is delayed ; but if it *corrupts* the part , the danger is greater , and more ſpeedy in execution.

Apoſtem is that degree or ſtate of a *Tumor*, when it is maturated or ripe , which is called Suppuration ; the material or humoral cauſe being then converted into a *Pus* or purulent matter : and while this is *in fieri* doing , all Sym-
ptoms

ptoms are aggravated, pain, heat, pulsation, tension are greater : but being perfected, they all decrease again, and the *Patient* finds ease ; but not out of danger in these internal *Apostems* ; for if it be so seated, where there is no convenient vent or *Emunctory* to discharge it, the case is desperate.

As the humoral matter that formed the *Tumor* was more benign and good, as pure *blood* ; so the converted *Pus* or purulent matter from thence, does commonly answer it in goodness : for of good blood and in sound bodies, the maturation is more kindly, the *Pus* white, mild, and not endangering to corrupt the part : but in foul depraved bodies and *malignant* diseases, *apostemated* matter is more putrid, stinking, and venenous, and does threaten a *Gangrene* or *mortification* of the part : and therefore such internal collections of matter, in *pestilential* and *malignant Feavers*, *Venereal Pox*, *small Pox*, and such like, are commonly mortal.

Scirrhus Tumors are such, as when the continent matter does not mature and become soft, fit to break and discharge ; but grows hard and fixed in the part, not apt to be discharged or removed by discussion or suppuration. And this the word *Scirrhus* imports, from *Σκίρρῶω induro*.

Tumors in some parts of the body are apt to suppurate, as in the *carnous* or fleshy : in other parts, as the *Joynts*, *Tendons*, and *Ligaments*, more inclined to indurate and become *scirrhus* :
and

and the reason may be this; that those parts which take their origine from blood, are more prompt and ready to suppurate as the flesh; but those which take their rise from seminal matter, as the *Tendons, Ligaments, Nerves, &c.* they are more inclinable to *scirrhusity* or hardness.

But besides this disposition of the parts affected, there is also, and chiefly a propension in the congested or influxed *matter* of these Tumors: for by the different nature of humoral matter, some is more fluxible and thin, participating much of *serosity*, and apt to transpire or be dissolved: other more yielding to a preternatural digestion and *suppuration*, as the blood that is pure and good: other inclining to be *viscous, coagulated*, and consequently to indurate; as a feculent, *grumous*, or gross blood, deprived of its *serosity*.

And farther; besides the disposition of parts, and that of the material cause inclining to this *scirrhusity*, there may also come in and be joyned with these a third promoter, which in some cases may be the chief cause, and that is, an ill method and injurious Medicines, so endeavouring to remove, may thereby fix and fasten the matter: for thus a *Tumor* which might probably be dispersed, may be changed from its own capacity and tendency, and become *scirrhus* and indurate: as when constant or great Coolers are administered to abate the *symptomatical* or concomitant *Feaver*, the matter of the *Tumor* is thereby fixed and impacted; which otherwise might

might have surrendred unto proper and powerful Medicines duly used. And *è contrà*, by too great Dryers and Heaters, the thinner part is evaporated, and the grosser remains; therefore *medio tutissimus ibis*; good resolute *transpiring* Medicines, taking their turns with the use of proper *Cathartics*, is the safe and best way.

These *scirrhus* Tumors, although they are not so dangerous for the present, except they be very great, or cancerous; yet they are the foundation of some *chronic* or lingering diseases, which proves very contumacious, and sometimes incurable, especially if the Tumor be latent and concealed: and a *Hætic Feaver* sometimes takes its rise from hence, which if you think to cure by *Emulsions*, Restauratives, and cooling Drinks, you will be much mistaken in your purpose and endeavours.

These *scirrhus* Tumors, some are with pain, some without: those that have pain are more hopeful (except they be *cancerous*) but those which are insensible upon pressure, are more difficult, or incurable. Now according to the nature and degree of *depravedness* in the continent matter, and from the part affected, so are these Tumors better or worse to be dealt with. And because these Tumors are internal and hid from the eye; therefore judgment is to be given of them from their *situation*, and from the *constitution*, with other circumstances of the Patients body.

But although these *scirrhus* Tumors are thus
O difficult

difficult to be undertaken and managed ; yet these are not the worst, and they may arrive farther, and to a more dangerous state : as when Tumors in their variation and degeneration do turn cancerous ; and this is apt to be in such bodies as abound with a black feculent blood ; or a thick blood adust by intemperate heat : and by how much the blood thus exceeds in this preternatural condition, by so much the Cancer is compleated, confirmed, and the worse : and this supervenes a Scirrhus commonly , as being an apt previous disposition ; (but may happen also without a Scirrhus preceding , from other Tumors degenerating into Cancers) and therefore in the Cure of scirrhus Tumors , great circumspection and diligence is to be used, lest by their delay and continuance, or improper usage of Medicines, these Tumors do not become cancerous and desperate , as sometimes it falls out so.

Now a Tumor is said to be cancerous, when it turns into a dark reddish , or livid and blackish colour , declaring this transmutation and degenerate state. The beginning of these Cancers are very small in compass (as those that present outwards do manifest their gradual enlargement) but by time they increase and grow big , with tumified Veins round about.

These cancerous Tumors may happen to any part of the body, but chiefly and most frequently, in the upper parts about the Face , as Nose, Lips , &c. or the Dugs , and other glandulous parts ;

parts ; also the *Womb* is thus affected sometimes from Tumors there bred, venereal or other, degenerating cancerous.

These Tumors sometimes are occasioned from the *menstrual* suppression in women ; and *Hæmorrhoidal* in men : and when it happens so, those causes are to be removed with speed.

Great skill and circumspection is to be used in Tumors of this nature ; lest provoking the continent matter, it grow more fierce, eating and ulcerating ; and from a cancerous Tumor, it become a cancerous spreading Ulcer, which is worse : now the signs of this Tumor inclining to break and ulcerate are, great heat and pulsation in the part.

The difficulty or incurability of Cancers lye here ; for that the cancerous matter will not yield to digestion or discussion : and this because the part affected is debilitated and overcome, by this depraved, malign matter, that it cannot exercise its transmutative and digestive power : nor will this cancerous matter obey Discussives, by reason of the visciditity and grossness thereof : wherefore Hippocrates gave sentence, That such are not cured but by section or usction : and yet this is not to be done, except the Cancer be small, and in such a part as will admit of amputation.

If Cancers external are thus difficult to be managed, although they appear to the eye, and are subject to manual operation and tractation ; the internal must be greater and more hazar-

196 Tumors *internal, scirrhus, &c.*

dous, where they cannot be applied unto after this manner, with convenient *Topical Medicines*: therefore prevention in time is mainly to be endeavoured, when a *Tumor* is generated, lest it change into this dangerous condition: for I find by the design of *Practisers* in the Remedies appointed, that palliation is sought for, the Cure not hoped for.

The grand intention to be prosecuted for Cure, is to change the condition of the *blood*, which does feed and supply this *Cancer*; so that the antecedent cause being taken away, the continent will then more likely abate; and until that be done, this cannot be expected.

The means indicated for Cure of these cancerous *Tumors* are branched into three parts: *Dietetic, Pharmaceutic, and Chirurgical*: but I shall not enlarge upon the *Indications* for Cure, for that these cases are so nice and difficult, as not to be handled with generals; but from a collation of all the circumstances attending the Patient, which varies every particular case.

And so I pass from *Tumors*, to remark their usual commutation and transfiguration into *Ulcers*, the next considerable in order to be treated of.

Ulcers

Ulcers internal.

THE Latine word *Ulcus* is derived of $\epsilon\lambda\alpha\omicron$, signifying a disjunction of parts or solution of continuity: but to distinguish this from other solutions of continuity; an Ulcer does yield a *Sanies* or purulent matter; so that a *Wound* coming to digestion and affording *pus*, may then be called an *Ulcer*: and any part that is gauled, raw, and tender, the covering Membrane being fretted and eaten away by some sharp humor, or other cause, it stiled *Excoriation* only, until it produce corrupt matter; and then it is properly called an *Ulcer*: thus internal parts are sometimes *excoriated*, raw, and painful, but cicatrized or skinned again before it arrive to the degree of an *Ulcer*. And thus it is most frequently in the urinary ductures or passages, and sometimes in the Guts; but such *Excoriations* are not to be slighted or neglected, lest they beget *Ulceration*, as sometimes it falls out so.

By external or outward *Ulcers* which are manifest to the eye, you may conceive of internal *Ulcers*; for they arise from the same causes, and have the same accidents: but I shall not enlarge upon all the accidental differences that attend upon, and distinguish external *Ulcers*, as not so pertinent and necessary to our subject in hand.

The essential and most considerable difference

rence of *Ulcers* does arise from their *causes*, and from the *part* affected; which bears the great sway in curing, and from whence the chief indications are taken; for although in external *Ulcers* other accidental differences may be observed and noted; yet in internal *Ulcers*, such differences cannot be regarded, as being obscured or hid: so that whether they be broad or narrow, deep or shallow, *fistulous* or otherwise, is not positively to be said; and if it were known, institution or method of Cure could not be so varied as external are capable of, by reason these are subject to manual tractation.

The continent causes of *Ulcers*, are such matter as emanate and flow from thence; and that is of three sorts: *Ichor*, *Pus*, and *Sordes*.

The first is an *ichorous* or *sanious* matter, being thin, indigested and watry, or dilated bloody.

The second is a *Pus* or purulent matter, of a better consistence and concocted thicker.

The third is a *sordid* foul matter, more thick and glutinous.

The *ichorous* thin matter usually issues in the beginning of *Ulcers*, and denotes indigestion; and also at any time afterwards does declare the same, that the *Ulcer* is not in a good healing condition.

The *Pus* or purulent matter signifies the *Ulcer* to be in a better state of healing; and if it be white and sweet, these are good signs.

The *sordid* gross matter does intimate a preternatural

ternatural heat of the parts strongly exsiccating, but not healing ; for as much as this matter is foul and stinking.

Ulcers for their manner of generation and rise, may be caused these four ways : by *Erosion*, by *Frication*, *Apostemation*, and *Contagion*.

1. By *Erosion* *Ulcers* are begotten in any part of the body, when a sharp corrosive humor does excoriate and eat into the substance of any part : and being thus injured, is thereby perverted in its office, and self-preservation ; converting that nutritious *Succus* which comes for its supply, into an *ulcerous* degenerate matter, no way useful but to be excreted and voided.

And thus a *Phthisis*, an *Ulcer* of the Lungs is sometimes generated, from a sharp *Serum* invading that tender part : and thus a *Dysentery* is sometimes begotten, being an ulceration of the *Guts*, from sharp excoriating humors : and thus an ulceration in the *Meatus Penis* is bred, from a sharp eroding *Gonorrhœa* : and an *Ulcer* in the neck of the Bladder may be planted there, by a sharp gauling Urine.

2. By *Frication* or attrition ; as when any hard, bony, or stony substance, does fret, raze, and excoriate a part : and thus a stone begets an *Ulcer* in the *Kidneys* or *Bladder*, and sometimes in other parts of the body.

3. By *Apostemation* ; as when any *Apostem* breaketh and dischargeth its matter, an *Ulcer* is left behind, though the *Apostem* be gone : and thus are *Ulcers* generated sometimes in the *Ear*,

from a preceding *Apoſtem* : in the *aspera Arteria* after an *Angina* or Squinance : in the *Breaſt* after a *Pleurifie* ; in the *Lungs* from a *Tumor* ſuppurated there : alſo in the *Liver*, *Spleen*, *Womb*, or other parts apoſtemated.

4. By *Contagion* or infection : and thus women whoſe *Privities* are infected, do communicate this virulency or venom, and ſeize the *Genitals* of their Partner, from whence venereal *Ulcers* do ariſe : and thus men whoſe *Seed* is tainted, do infect ſound women, and cauſe virulent *Ulcers* in their *Privities* ; which malignity not being well managed and maſtered by ſkill, and efficacious Medicines, it ſpreads, breaks forth, and begets *Ulcers* in many other parts of the body : as at large I have ſet forth in another Tract, entitled, *The Myſtery of the Venereal Lues*.

Internal *U'lers*, though they diſappear, yet are known to be by theſe ſigns.

First, Pain, which is more or leſs according to the nature and ſenſibility of the part.

Secondly, From preceding cauſes, as *Inflammation* or Tumor preceding, whoſe Symptoms being allayed and ceaſed, yet pain remains.

Thirdly and manifeſtly, From excretion of ulcerous matter, where there is any ducture or outlet for diſcharge : by the *Inteſtines*, by the *Privities*, the *Noſe*, *Ears*, or *Mouth* : but where there is no paſſage or vent, it corrupts the containing part, and is mortal, except a paſſage can be made by ſection.

Ulcers

Ulcers from their causes, their aptness and inaptness for healing; some are *benign*, mild, and tractable: others are *malign*, very difficult, or incurable.

The *benign* and mild, are such as arise in sanguine sound bodies, and the younger people, having no ill Symptoms or adjuncts of impediment; the matter of such *Ulcers* is a laudable *Pus*, or otherwise apt for digestion, more yielding, and readily commanded by Medicines.

Malign Ulcers, and contumacious, difficult, or intractable, are such as are sordid, fetid, ichorous, unctious, dolorous, corroding, and depascent, of long continuance, virulent, cancerous, fistulous, cavernous; the products or effect of malignant diseases, as venereal *Lues*, *Leprosie*, *Pestilence*, &c. in *cachectic* habits of body, *hydropic*, *hectic*, aged, consumptive and decayed persons: in principal, and difficult parts of the body; as the *Brain*, *Lungs*, *Liver*, *Spleen*, &c. the *Spondyls* of the *Back*, and great *Junctures*.

Since *Ulcers* are thus various in their nature, from the several conditions of bodies, and diseases that they arise from, or depend on, and the difference of parts wherein they are seated; a general *Method* of healing, and course of Medicines cannot be instituted and appointed; but every case hath its peculiar complication of circumstances, as directory indications to be remarked, from whence a designment, method, and adaptation of Medicines is formed, suitable to the particularity and different case of every indivi-

individual *Patient* ; and therefore I have not proceeded to the Rules and Medicines for Curation.

Only thus much I shall note to you, as a grand observable in the Cure of these *Ulcers* : That such as arise from some remarkable disease, as *Dropſie*, *Scorbute*, *Venereal Lues*, or other malign and *Cacochymical* habits of body ; that these *Ulcers* are not to be cured until the disease and evil state of the body on which they do depend, be reduced to a good condition or mediocrity of constitution : for the antecedent cause which first produced the *Ulcer*, must be removed before the *Ulcer* is capable of healing ; because of the continual supply of peccant matter brought to the ulcerated part : and therefore application is first to be made there, else all endeavours will be frustrate.

And further, the designment of these Cures, are not to be paralleled with, nor levelled by, the methods and intentions that the common Rules in Chirurgery have laid down ; for as much as many of them are erroneously grounded, and deserve great correction and amendment, which hereafter will be pointed out and discussed ; for we have not room here, nor time now to ingage in that Controversie, and must refer it to the next opportunity.



Gangrenes

Gangrenes and Mortification.

THE last and worst transition of this dangerous train of Diseases, and the *ne plus ultra* in vitality is a *Gangrene*, being a borderer upon, or next adjoyning unto *Mortification*, or the beginning thereof.

And although *Gangrenes* are thus ranked next to *Ulcers*, and it falls out so sometimes in the preternatural course of Nature (if I may so speak) yet it is not always so; but a part may and does *gangrene* sometimes before it be ulcerated, for Inflammations and Tumors do *gangrene* as oft as *Ulcers*: but *Gangrenes* are placed in this order after *Ulcers*, as being the worst and last *morbous* state that can come, and beyond this there is no disease: for although *Mortification* be set down after *Gangrene*, yet this is no disease, *vita extincta non est morbus*; for diseases are seated in the life, *corpus vivens est domicilium morborum*, and where no life is, there is no disease: but *Mortification* is posited here as the center to which diseases move; and as bounds to stop all farther disquisition.

A *Gangrene* is a corruption and change of a part or member, into such a degree or state, as beginning to mortifie, or is mortifying.

But *Sphacelus* with the Greeks, *Sydecratio* in the Latine, which we call *Mortification* in English; is when a part is perfectly mortified and dead:

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dead : and therefore a *Gangrene* is capable of Cure , but a *Sphacelus* not , because the part is dead.

A privatione ad habitum non datur regressus.

The external and primitive causes of *Gangrenes* are ; *Contusion* , *Vulneration*, *Congelation*, *Combustion*, *Constriction*, *Poyson*.

Contusion sometimes introduceth a *Gangrene* by coagulating and fixing the blood so firmly in the part contused, that thereby the life is suppressed and overcome: for communication and intercourse with other parts of the body which is requisite, being thus denied, the life extinguisheth : besides, the coagulated bruised blood remaining long undiscussed , does putrifie , and *gangrene*.

Vulneration or *section* sometimes procures a *Gangrene* , when the vital Principle is so debilitated, or enormous by the wound , that instead of a good suppuration and vigorous transmutation, a depraved matter is generated , which corrupts and *gangrenes* the part : and thus a small cut of a *finger* or *Toe* hath gangrened, and killed the person : but in greater Wounds, the danger is greater, as more frequently to happen.

Congelation , by extremity of cold , hindring Transpiration ; and condensing the blood, rendering it *stagnant* in the Vessels , suffocates the life, and *gangrenes* the member: thus in extreme cold Countries , people by casualties exposed, have their *Limbs* mortified sometimes: and thus a *Gangrene* is brought upon an *Inflammation* or
Erysipelas

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Erysipelas sometimes, by incautelous and pernicious application of great refrigerating or cooling Medicines, thereby incrassating the blood, and prohibiting transpiration. And this is very hazardous, though advised and practised frequently by some *Chirurgeons* in these cases, using cold, astringent, emplastic Cataplasms; *ex farin. bord. bole armen. album. ovor. aceto, &c.* when an Inflammation appears.

Combustion sometimes begets a *Gangrene*, and destroys the life of the part; when by neglect thereupon, or improper means used, relief is not duly afforded: and thus by *Canteries* and *Caustics* sometimes a member becomes mortified. Now *Ustion* or great hurt by burning, causeth *Gangrenes* by corrugating, shrinking, and searing up the Vessels, that they cannot bring supply of vital Spirits and nutriment to the part.

Constriction or compression procures a *Gangrene*, by intercepting of vital communication; so that the member thereby is as it were separated and cut off from the body, and fountain of life: for the parts are maintained by influxed rays and streams of vital heat and moisture to the remotest parts of the body, but being deprived thereof they dye: thus a *Ligature* drawn strait about the Arm or Leg, and continuing too long, may *gangrene* and mortifie the part, by excommunicating it from commerce with, and participation of the general life.

And thus sometimes internal *scirrhus Tumors* do compress the Vessels and obstruct them: of
this

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this *Fabricius Hildanus* gives an example of one that a *Gangrene* seized both his legs, of which he dyed: the cause was latent, until by dissection he found a *scirrhus Tumor* about the *Vena cava* descending, between the *Reins*, where this great Vein divides into two parts to supply both legs.

Poisons, some of them do *gangrene* by concreting and condensing the blood, stopping the canals and suffocating the life, as the *Venom* of a *Scorpion* and *Asp*: others by putrifying and corrupting the blood, or some other part where they chiefly discharge their venom.

Internal and conjunct causes of *Gangrenes* are, *Inflammation*, corrupt, venenous, or malignant matter, that preys upon, and destroys the vital Principle; *stagnation* of the blood, or what else may intercept commerce and supply from the fountain of life.

The Characters or signs declaring a *Gangrene* are these: the sense of feeling decays, the colour changeth and inclines to be livid or blackish, the flesh grows flaccid and frigid: but when the *Gangrene* proceeds on to a *Sphacelus* or perfect mortification, these Symptoms then are aggravated, and appear more eminent; sense is quite abolished, and the part becomes fetid and *cadaverous*.

Gangrenes are very seldom mentioned in *Practice*; and you shall rarely hear of any person to dye of a *Gangrene*; yet I must believe (and not without good grounds) that many thousands

thousands dye by an internal *Gangrene*, not taken notice of: for if the major part, at least a great part, do dye with a high Feaver or *Phlogosis*, we may rationally then conclude, that a *Gangrene* is frequently conjoyned as the last *Actor* in the Tragedy and immediate cause of death: for *Gangrenes* do commonly supervene *Inflammations* where they are mortal: and thus also *Inflammations* from fractures and dislocations, often bring on a *Gangrene*.

And in malignant high Feavers there are sometimes such *vibices*, marks of mortified blood, and black mouths, which do strongly suggest a *Gangrene* within the body.

And for those that perish by the *Plague* in so short a time, whose venomous matter shews it self by *Spots*, *Vesicles*, *Buboes*, and *Carbuncles*; most of these dye *gangrened*.

And many of those that expire by the small Pox, have a *Gangrene* in some part; the putrid matter being lodged there, Nature not able to protrude and bring it forth: and it is very reasonable to assert this; for, if a *Gangrene* will arise out of a very small portion of matter extravasated, defluxed, or congested in a part; then where the whole body abounds with malign putrefaction and overflows with it, any part thereof remaining within the body, may and does very often corrupt and *gangrene* that part.

That our Opinions are not so extravagant and *excentric* from the Judgment of all Learned men, as some perhaps inconsiderately may censure:

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sure: take notice what *Arniseus* an eminent Physician in Germany, Professor in the University of *Julia*, writing to *Gregor. Horstius* about a Person of Quality that dyed of the small Pox, queried or rather concluded, that the *Liver* was gangrened: and farther saith, *Verisimile est, multis idem accidere, qui ex variolis moriuntur.*

To which *Horstius* answers by Letter, and consents with his determination in these words: *Cum autem necessario febris sanguinea cum putredine majori concurrunt, in tali casu facillime fieri poterit, ut prevalente calore febrili το δεινόν ἐμψυγον in viscere sanguificationis præ cæteris corrumpatur; imprimis cum, propter cutem undiq; pustulis exulceratam & incrustatam, transpiratio & eventilatio difficilior sit. Si enim inflammationes internæ ipsiusq; jecoris juxta communem nostram amicum Guil. Fabr. non raro desinunt in gangrænam, non video cur non idipsum sæpius etiam fieri possit tunc temporis, ubi variolis undiq; satîs quidem expulsis, gravissima symptomata partium internarum inflammatarum nihilominus perdurant, eo usq; donec ægrum penitus jugulent.* Horst. Institut. Med. Disp. 3. coron. 1. additament.

And in many other acute malign Diseases, either the morbid matter is not discussed and discharged from the seat of the disease; or else is expelled thence into some other, perhaps a remote part, where it corrupts the member, and extinguisheth the vital Principle, called by some the innate Spirit.

Now concerning the curability and incurability

bility of *Gangrenes*, take these instructions before the disease be undertaken, or left for desperate and hopeless.

First, Consider the duration or time of the disease, the age and strength of the Patient; for a *Gangrene* in the beginning is more easie and hopeful, than after continuance; because it proceeds on commonly and draws nearer to a *Sphacelus*, which is incurable: also young persons, vegete and vigorous in spirit, are more hopeful than others, aged, or worn out by long, or enervated by acute sickness.

Secondly, Examine into the *essence*, nature, and rise of the disease, which will lay open much of the difficulty thereof: for *Gangrenes* from a primitive cause, as *Contusion*, *Fracture*, *Section*, *Ustion*, *Caustic*, or other erosion, &c. are more curable and less dangerous, than those that arise and depend upon antecedent internal causes; for *Gangrenes* of this sort do declare a cachectic, depraved habit of body, and that some of the internal *Viscera* are damaged and vitiated, from whence a supply of ill matter: and therefore in *Hydropic*, *Scorbutic*, and *Hectic* febrile bodies; also in malign and contagious diseases, small *Pox*, Venereal *Lues*, *Plague*, &c. *Gangrenes* are more desperate.

Thirdly, The part affected or seat of the disease is to be noted: for if a principal part be *gangrened*, recovery is very rare; also in the Guts a *Gangrene* is mortal, by reason of continual moisture there, and imbecillity of these

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parts ; also in the *Vagina Uteri* , and *Glandules* of the body, a Cure is seldom performed.

Now as touching the Cure of *Gangrenes*, there is not any one Method or particular Medicine for *Gangrenes* ; but they require such variation of Cure according to the difference of their causes from whence they do arise, with respect to the part affected.

And therefore we cannot point out any general course that may be applicable to this great disease ; but indications of particular and special cases must vary , and will make exceptions against it : So that the rational Physician depending and duly considering the nature of the disease and variations thereof, as aforesaid, with the Symptoms and circumstances attending ; must design such a Method, and adapt such Medicines *pro re nata* , as may best suit with the urgency of this dangerous and threatening Malady.

The means required and useful in these emergencies are taken , some from *Pharmacy* , and some from *Chirurgery*.

Pharmaceutic Remedies are both internal and external. Internal are select and choice *Purgatives*, *Diaphoretics*, and *Cardiacs*, elaborated and prepared according to latter inventions, and the best Rules of Art. Topical and external are, *Fomentations* , *Liniments*, and *Cataplasms*, specified and appropriated to these purposes.

Chirurgical helps are , *Phlebotomy* , *Cupping*,
Scarifica-

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Scarification, Canteries, &c. and therefore an expert Chirurgeon must here be assisting, to perform these operations.

Now all these various means are not to be used to every person *gangrened*; but each case will require some of these, more or less, as the Judgment of a skilful Physician in this disease, shall determine and appoint.

But if the *Gangrene* by continuance and neglect; or from acuteness by great malignity and venenate matter, hath proceeded too forward, and draws near to a *véxpos* mortification; then these means are to be laid aside, and nothing remains to be done but *amputation* or *dis-membring*; and that only if the part will allow it, as Arm or Leg, *Scrotum* or Dug,

————— *immedicabile vulnus*

Ense recidendum est, ne pars sincera trahatur.

And if a separation of this dead part from the living cannot be performed, there is no hopes of recovery or reduction of that to life again: *à privatione ad habitum non datur regressus.* Nor is there any hopes of the *Patient's* life, for this mortified part will corrupt and mortifie the whole.

Where amputation can be performed, this question, as a difficulty, ariseth amongst men of Art: Whether *Section* should be made in the sound, or unsound part. Some are of opinion, that it should be in the *dying* or *dead* part; thereby to avoid pain; to prevent the great *Hæmorrhage* or flux of blood, and Con-

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vulsion: but I rather consent with those that determine of the other side, as the most secure way, and the arguments for it are more prevalent, rather to take away some of the sound flesh, than to leave any of the corrupt and mortified; for from that root the same mischief may grow again, notwithstanding *cauterizing*, or what else may be done.

For a good performance and happy success in this operation being the *ultimum refugium* and extreme remedy in this desperate case, there are many things to be cautioned; some before as previous; others in the doing, and also after dismembring, to prevent the ill accidents that may attend or follow. But I must wave those particulars now, until occasion be offered to revise this Work, and enlarge upon the several Heads treated of.

And since that these diseases now briefly discoursed, have such transitions and gradations, from bad to worse, and from thence to extremity; it behoves every one upon suspicion of these latent and obscure Maladies (intimated by pain) to begin early with them, when with a smaller matter they are capable to be reduced: but delays and neglects, or improper mistaken courses, do precipitate the Patient into languishing and difficult, or irremediable conditions.

Multæ agritudines suâ naturâ sanabiles, ægri negligentia, aut Medici errore, fiunt incurabiles.

The

The Result of the whole matter, by
way of Recapitulation.

I Have thus briefly delivered to you the most considerable matter relating to the Subject proposed in the Front of this Work, *Pains, Inflammations, Tumors, Apostems, &c.* this frequent and latent progress of Diseases; which might admit of great enlargements and long discourses upon the several parts, and points touched upon; but I have only drawn out the chief Heads as a *Compendium*, easie to review and retain in memory, whereto many cases and the most principal in Practice do refer and belong, and may serve as a guide and caution to *Practisers* that jog on in the common beaten road, who little suspect this train of Diseases, and discern not their disguises in the sicknesses they undertake.

Indeed it seems something strange, that these *capital* diseases, which most other are dependent upon, or move towards, should not be obvious, and more frequently the subject of *Practice*; these being primitive diseases, and a groundwork, from whence many others are derived and bottomed upon: or else they are such, as most diseases do fall into, and are the terminations of them.

And it is very reasonable to expect, that both most *acute* and also *chronic* diseases should go in this road, and make their *transitions* by these

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these stages; for *pain* is so general in diseases, and this so naturally leads on the rest, or at least does signally declare that the rest are coming on; as in *pag.* 9, 10, 11, 12. is set forth.

And if you do but consider, that in diseases, both *acute*, and *slow* of motion, there is most commonly a peccant matter lodged here or there, and causeth particular pain in some part; or else this *morbific* matter is floating in the Vessels, and produceth only some general indisposition, or a febrile estuation and distemper; if it be lodged in any part by defluxion, or bred there by congestion, it necessarily diseaseth that part, gives some disturbance by *pain*, and will form a *Tumor*, if not removed and dislodged in due time: but if the morbid matter be roving and fluctuating, Nature either makes a secretion and sends it forth by her own strength, or assisted by Medicine; or else it is transmitted into some ignoble part, where it will not lye dormant long, but accumulates there, becomes more depraved, and lays the foundation for this train of diseases: so that either way there is a tendency to bring about this design, the subject of our Discourse.

In the most *malignant* sicknesses you may discern some or more of these confederate diseases as *Actors* therein, whether small *Pox*, great *Pox*, *Plague*, &c. for eruptions and superficial *Tumors* are but internal *Tumors* transplanted; at least are the signals of Natures endeavors and strength, with or without assistance to cast out
that

that *morbous* matter, which otherwise must necessarily *inflame*, *tumisie*, *apostemate*, *ulcerate*, corrupt and destroy the internal parts.

And *Feavers* that are not malign, they are adjudged salutary and hopeful, when Nature makes a good *Crisis*, by *Fluxes* or *Sweats*, by *Urine*, or a *Hemorrhage*: and if the morbi-
fic matter be not discharged some of these ways, it lodgeth here or there, after long floating about, is sequestred and cast into some recess, *Glandule* or other ignoble part, where it forms a *Tumor*, and is the secret foundation of some *chronic* disease, or another *acute* sickness, if not anticipated or prevented by due course of Medicine: and therefore in the designment of most Cures, acute or chronic, these are the dangerous rocks you are to avoid, lest the *Patient* miscarry here, for want of discerning and foresight thereof.

The method and drift of our Discourse is, to let you understand, that this grand *Series* of diseases is the usual progress in sickness; and by these stages most diseases do pass on, and have their gradual advance by these commutations, and thus make their approaches towards death.

Some go but part of this way, such as Providence with good means does shorten the course, prevents the mischief threatned, and reduceth them back into their former state of health. Some are only pained for a while, it goes off and ends there: but some are pained in a higher degree, and *Inflammation* follows there-

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thereupon, but it goes no farther; this *febrile* inflaming heat is allayed, and all is quiet again. Sometimes it proceeds farther, and to *Inflammation* a *Tumor* is added; which notwithstanding by due administration of Medicine, this is dispersed, and the sick reduced to a sound state again: but yet sometimes it advanceth farther and into greater danger; as by some neglect, improper means, or other casualties, that this *Tumor apostemates*; and then it cannot stop there, for this must break, and then an *Ulcer* will follow of course: this *Ulcer*, if not of a very malign nature, or very ill seated, is yet curable, and the Patient may do well and recover, by care and skill of the *Physician*, and tractability of the diseased: but else this does corrupt and mortifie the part; and then there must be dismembring (if capable) which is hazardous and doubtful; or *mortification* of the whole will soon follow, which is certain.

Thus you see some go half the way; some but a quarter; and come off well: others that are engaged in a fatal sickness, must go through and finish the whole course by these gradations, or else *per saltum*; although they may step over, and miss some of them, yet they do arrive at the *period* of mortification.

I have now finished what I intended briefly upon this *Subject*, having given you a prospect of this secret and lurking train of Diseases; discovering them in their *causes* and *disguises*; under what distempers they commonly are veiled and

and obscured: their signal distinguishing *Characters*: their dependence and complication: their manner of commutation and transition from one to another: the *Indications* belonging to each state and gradation, prompting a designment and method for redress, to obviate these dangerous and growing evils.

Of Fontanels or Issues, and Setons:

*Shewing the right Use, and true Effects
thereof.*

BY the course of Nature, humane Bodies are nourished and maintained, by a continual supply of necessary food daily to be received in; which before it be assimilated and incorporated into the substance of the body, this *Aliment* must undergo several transmutations and digestions: in which *previous* disposition and gradual preparation for nutrition, there is a separation made, the nutritive and useful part, from the excrementitious and unnecessary: the *defecated* utile part designed for aliment, is still conveyed from one digestion to another, for a farther elaboration, until it hath received the complement and full perfection intended by Nature: the excrementitious and
inutile

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inutile part separated in this course, is transmitted and received by *sinks, chanel*s, and *vent-holes* peculiarly appointed and framed for such conveyance and discharge out of the body, as the *Guts, urinary Ductures, Nose, Ears, Pores* of the Skin: which passages, if at any time obstructed and stopt, the detriment and sensible damage soon confirms the necessity of their use and office.

And as Nature hath thus appointed and framed in the body these *Vents* and *Outlets* for the daily discharging of excrementitious and superfluous matter, which else would deprave and corrupt the body, suffocate and stifle the life, if not in some measure duly evacuated: in imitation therefore of Natures contrivance, *Art* hath invented *Fontanels* and *Setons* as Ports and Vents, to be placed here or there, (as the variety of occasions require) to supply Natures insufficiency and inability to help her self in the discharge and emission of superfluous or depraved matter, which produceth various diseases and Symptoms, according to the several proprieties of their nature and degeneration; or from organical difference, and peculiar offices of the parts they invade and infect.

And having such artificial passages of egress set open, by which Nature finds her self alleviated and disburdened thereby; does daily transmit and send any exuberant *morbific* humors to this new *Outlet* as to other common conveyances for excretion, by her own institution and fabrication.

But

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But for a fuller information and satisfaction in the use of these *Fontanels* and *Setons*, we shall consider

First, What these are, and the manner how they are made.

Secondly, What *matter* is usually discharged and evacuated thereby.

Thirdly, For whom and in what cases they are beneficial.

Fourthly, The *places* and *parts* of the body where they are to be set.

Fifthly, The due ordering and dressing of them; with observations upon their various conditions and accidents.

Lastly, The *Time* convenient, and signs when to close them safely, with the circumstances thereto belonging.

Vesicatories, *Cupping*, *Cauterizing*, and *Scarification* are used upon emergent occasions for a more speedy and present help, and do shew their effects sooner: but *Issues* and *Setons* are planted upon a future expectation, and their effects are matter of time, and therefore they are continued longer; and because they are used sometimes by way of precaution, therefore they are designed to be of continuance and constancy.

Fontanels are so called from *Fontinella* or *Fonticulus*; because, as a Spring, they send out their moisture continually: and they are also called *Issues*, from such issuing forth.

A *Seton* in Latine *Setaceum*, is so called, because

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cause that which was drawn through the *Seton*, and remains to keep it open, was made of hair; but now we commonly use silk.

Issues and *Setons* are used for the same purposes; but *Setons* having two Orifices, and by drawing the silk to and again, do cause a greater discharge of humors, if the *morbific* matter be brought to the superficies, as in *cutany* affects: but these being more troublesome than *Issues*, they therefore are seldomer used. *Fontanels* are made by *Section* or *Caustic*; but *Setons* are always made by a perforating Instrument; which being well known to the *Chirurgion*, I need not say more.

For the nature and quality of humors issuing forth, they are divers according to the various disposition of bodies diseased or sound: such as the body abounds with and is superfluous, such is transmitted thither for emission. And that the humor evacuated is not good and useful for the body, appears by the concomitant signs manifesting the nature of it; itching, pricking, the pain about the place, *Inflammation* and spongy proud flesh rising, in some more, in others less; which are not signs of a natural good humor, but a hot, fretting, sharp, preternatural humor flowing thither, degenerate and corrupt. Also any extravasated humor proceeding from the *Veins* and *Nerves*, does move and flow thither; sometimes *ichorous* or *serous*, and sometimes bloody: And such humors as were wont to resort to, and infest
any

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any infirm part, an *Issue* well placed does intercept and evacuate: and although the matter that issues forth is little to behold; yet because this evacuation is constant, it amounts to something considerable.

From hence we may understand for *whom*, and in what *cases* these *Fontanels* are beneficial.

For corpulent and *plethoric* bodies; such as feed high, and live a sedentary inactive life, whereby a liberal and free Transpiration is restrained, *Issues* may be good for them by way of precaution; for they are in danger of some sudden disease.

For several diseases of the Head, *idiopathically* affected; *Convulsions*, *Vertigoes*, *Pains*, *lethargic* and sleepy disposition, sore *Eyes*, &c. *Fontanels* or *Setons* may be used with benefit.

In *cachectic* depraved bodies, and diseases from putrid humors; *Issues* make an abatement of the *morbous* matter, and give some mitigation of the effects.

For *Revulsion*, *Derivation*, or *Interception* of a humor injuriously resorting to an eminent or an infirm part; *Issues* are advantageous to alter the course and current thereof.

For *erratic* pains, *cutany* defecations or eruptions, and *Tumors* in any part; *Fontanels* are beneficial.

In most *chronic* diseases, that give time and liberty for the use of various means, a deliberate

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liberate way of Cure, and gradual spending of the *morbific* matter; *Issues* do contribute assistance herein: but in *acute* diseases that require speedy help, they are not a proper Remedy.

But although these *Fontanels* are of good use in the cases aforesaid; yet they are not to be relied on as *curative* Remedies; that is, they do not eradicate a disease, because they do not apply to the spring where it does arise; but they give vent, and turn the current of a humor this way, or that way, that it shall not overflow to do hurt other ways. They *minorate* and lessen the morbid matter, and abate the extravagant productions and growth of a luxuriant humor, and are but *remedia à posteriori*: So that these *Issues* do not hinder, must not jostle out the use of good Medicines that must take away the *antecedent* cause, and *radically* cure; by applying to the fountain and rise of a disease, the part primarily affected and deficient in office, that is the original cause of any produced noxious matter.

For the right placing of *Issues*, that they may prove advantageous for the purposes intended; you are to consider whether the case requires a *general* evacuation only, or *revulsion* and evacuation, or *derivation* and evacuation. If only a general evacuation answers your intention, then set your *Fontanel* in the left Arm: but if for *revulsion* of a humor, it must be remote from the part affected or complaining;

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ing ; but if *derivation* be most convenient, then the *Issue* must be near the part affected. Sometimes an *Issue* is placed in the part affected, to empty and evacuate a morbid humor lodged there.

Secondly, Having thus determined the part or member ; you are then to chuse a fit place for the *Issue*, observing diligently the position and motion of the *Muscles*, else your *Issue* will not be so beneficial nor lye easie : for if it be set upon, or too near a *Tendon*, or in the body of the *Muscle*, the motion and attrition of the *Muscle* will molest and disturb it with pain, and the evacuation will be but little ; therefore you must place them *in interstitiis Musculorum*, in the place or distances between the *Muscles*, where the extravasated humors are most frequent in their motions and perambulations : and therefore this operation is not rashly to be attempted, but considerately to be performed by good advice, and a skilful hand in *Anatomy*.

Fontanels being thus appointed for several purposes and cases, will require a different situation, some in one part of the body, and some in another. For diseases that are seated in the Head, *Fontanels* or *Setons* may be placed in the hind-part of the Neck : but because they appear more in sight there, and also are troublesome, *Issues* may with the like benefit be set *inter Scapulas*, between the shoulders, one of each side the Spine : or else in the Arm between the

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two Muscles *Deltoides* and the *Biceps*, about four or five fingers breadth below the shoulder-joynt : and this is the most frequent place, because the *Patient* may dress this *Issue* without help.

But *Fontanels* in the Back do not only contribute help to infirmities of the *Head*, but also they are beneficial for *Arthritic* or Gout-pains, by intercepting and evacuating the morbid humor that tends towards the *Joynts* : also *Fontanels* thus placed, do divert and turn off a defluxion or current of humors that invade the *Lungs* ; and therefore such as are troubled with *Coughs* from a destillation of Rheum into the Breast, and are inclining to be consumptive, will find benefit thereby.

In the *Groin Issues* may be set for diseases of the *Liver* or *Spleen*, observing the rectitude of parts ; the right side for the Liver, the left side for the Spleen : this place also is convenient for derivation of the morbid humor that causeth *Sciatica*-pains, and pains of the *Back* towards the lower end of the *Spine*, and about the Loins. The *Glandules* in the Groin are appointed to receive superfluous and excrementitious humors, which being readily discharged again by *Issues*, the current of morbid matter will then more freely resort thither, and exonerate such parts adjacent as are infested and oppressed therewith.

The *Thigh* and *Leg* also are places for *Fontanels*, to make a revulsion of humors that molest
and

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and injure the superior parts; and also may serve for a general evacuation. In the *Thigh* an *Issue* is usually placed a little above the *Knee*, as being most fit there for a binding to keep on: as also in the *Leg* a little below the *Knee*, the inside of the gartering place.

The *Issue* being made, whether by *Cautic* or *Section*, the orifice must be kept open with some pellet; for which commonly the largest sort of *Pease* is made use of, and so continued, except some occasion by alteration or condition of the *Fontanel* causeth variation; and then sometimes little balls are made of *Ivy-wood*, *Gentian-root*, *Orris*, or *Hermodyls*, &c. as the case may require.

The first dressings of the *Issue* for two or three days a digesting Plaster is to be laid on; afterwards an *Ivy-leaf* may be used, which attracts a serous humor, and provokes the *Issue* to run; and over this is laid a thin paper: but for a constant wearing and common use, a piece of varnish or oil'd cloth, such as the coverings or riding Hat-cases are made of, is very commodious and easie to provide; very necessary for journies or voyages, where the other is not to be had; and this you need to change but once in a week or more, wiping and turning it every dressing.

For the due ordering and keeping of *Issues*, you are to observe the times of dressing: such as run sparingly or but little, once in 24 hours is sufficient; but those that send forth matter

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more freely and plentifully, dress them morning and night: that is, to take out the Pease, wipe the place, and put in another.

If the *Issue* fills up at the bottom, and makes the Pease to start, then lay a Groat upon the place next under the binding, which will keep in the Pease, and continue the *Fontanel* deep.

If the brim or edge of the *Issue* rise high with proud flesh, sprinkle a little powder of burnt Alum upon it, for one or two dressings, which will bring it down even with the *Cuticula*.

When your *Fontanel* abounds, and runs much with a sharp, or stinking *ichorous* humor that excoriates round about the *Orifice*, and causeth pain; to abate and take off the antecedent cause, you must purge sometimes with a proper and good Medicine: avoid also intemperate, or often drinking between meals; be sparing in your diet, especially at nights, and keep seasonable hours for bed-time.

When you desire, and the case requires an *Issue* to evacuate more; inlarge the *Orifice* and *Cavity* thereof, by putting in pellets bigger than pease, as Horse-beans; and if that be not sufficient you may put in two.

An *Issue* sometimes at the first making will not run well; the morbid matter being accustomed to frequent other places, and having not found this new vent-hole: you must then wait with patience for the desired effect, and use such means as hereafter is prescribed for a dry

dry *Issue* : but if after six months you find not some reasonable discharge of matter here, let this *Issue* heal up, and set another in some place else, where the humors may more freely resort.

If an *Issue* runs but little, and begins to grow dry, as sometimes it happens so ; then put in a pellet made of *Ivy-wood*, *Orris-root*, *Gentian*, or *Hermoclyl*.

When your *Fontanel* is inflamed round about, by reason of *Plethory* or a *febrile* turgid blood causing extravasation and fluxion about the orifice ; then apply *Emplastr. è mucilaginis* to the place ; but if it continue pertinaciously, and threatens farther mischief (as sometimes a *Gangrene* hath happened hereupon) then bleed and *purge*, which will empty the Vessels, retract and give room for retirement, and is the best way to prevent danger.

If a *Fontanel* by time shifts its place, and settles lower, as sometimes it doth in the *Arm* or *Thigh*, and comes too near the *Juncture* ; then you must suffer this to close or heal up, and another must be made higher in the proper place convenient.

The closing or healing up of an *Issue*, not substituting another elsewhere, is warily to be done by advice, else you may run a hazard and be in danger thereby ; for some upon this account have lost their lives : for Nature having found such a conveniency and help, does expect and requires it to be continued, until the occa-

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sion be otherwise prevented, and cause removed by *Medicine*, or Nature better able to discharge and free her self by the *Emunctories* and outlets of her own appointment. Now if prematurely and unseasonably, this artificial passage be denied and stopt up, there being cause for the contrary; the confluence of humors then meeting and gathering at the place, regurgitates back again with united force and greater current; at which Nature being surprised unexpectedly, and having made no provision to secure her self from such a *Reflex*, the same preternatural Symptoms and ill affects, against which the Issue was first appointed, or rather much worse, will ensue thereupon.

Before the closing up of an *Issue*, these things are to be considered: the cause for which it was appointed; what effects, alteration or abatement of the infirmities since; the age of the person, whether in youth, strength of Nature, or declining years, and what state of health the person hath for some time enjoyed, and is now in: which are to be adjudged and determined variously, as particular cases and their circumstances collated do suggest: but generally the body is to be accounted in a better or worse condition, as the humor issuing does appear: *ichorous, sharp, bloody, and sordid matter, smelling strong or stinking, much in quantity*, declare the body to be *cacochymical* and foul, the Juices depraved and degenerate, and require the *Issue* to be continued: but the matter issuing *white,*
reasona-

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reasonable *thick*, *sweet*, little *quantity*, not *sharp* or painful, nor causing *Inflammation* about the place; these are good signs, and shew soundness of body, the nutritious Juyces to be in their natural condition, amicable and friendly to the body, and permit an *Issue* to be healed, *cæteris paribus*: but withal let due *Purgation* succeed by intervals, and a spare diet for some time.

London, from my House
in Wine-Office Court in
Fleet-street.

F I N I S.

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